

Why the Conventional Wisdom about the 2008 Financial Crisis is Still Wrong

Why the Conventional Wisdom about the 2008 Financial Crisis is Still Wrong:

Ten Years Later

By

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PREFACE

The book you are holding has been the result of a decade of thinking about the financial crisis of 2008. That event motivated much of my initial study in graduate school. I decided, after years of mulling over what happened, teaching multiple courses on the topic, and seeing many similar pre-crisis trends emerge, to write a book about the crisis from my perspective.

I've written *Why the Conventional Wisdom about the 2008 Financial Crisis is Still Wrong: Ten Years Later*, with the intelligent layman in mind. You don't have to be an expert in economics or finance to read this book. You don't have to be up to date on all the latest financial developments to understand what happened. My book is not as thorough and detailed as many of the works I cite. But it attempts to present the whole crisis, including its aftermath, in the way you might describe the crisis to friends and family at the dinner table or on an airplane.

I don't want to delay you from diving in any longer but I would be remiss if I didn't acknowledge several important contributions. A book may be written by one person, but that person's ideas have been shaped and developed in hundreds of ways through conversations and research. I wish I could acknowledge all the people who have affected my thinking on the crisis, but the list would run on for pages. Those of you who have talked with me about the crisis know who you are and I want to sincerely thank you for your thoughts and ideas that may have been worked into a chapter here and there.

I would like to explicitly thank my former students who took my class on the 2008 financial crisis last year. They sharpened my thinking with their questions and insights from the variety of materials we read. I would also like to thank conference participants who gave me helpful comments when I presented various elements of this book on panels at the Association for Private Enterprise Education and the Southern Economic Association Meetings. I have also had several student research assistants who looked up many details and references for me including: Kara Simmons, Rachel Cooley, Rachel Cline & Justin Cox.

I must also thank Linda Williams for giving extensive editorial comments. Her detailed comments, suggestions, and notes on every part of the book improved its quality. Any remaining shortcomings in grammar,

syntax, or clarity are certainly my own. I also owe an enormous debt of gratitude to my wife, Kathryn Mueller, for watching our two, now three, children under five years old. If it weren't for her efforts to care for them while I disappeared for hours at a time to finish this book, it would never have seen the light of day. And I thank God, without whom none of this would exist or have any meaning.

INTRODUCTION

TEN YEARS LATER

2018 marked the tenth anniversary of the greatest financial crisis in recent history. Was the crisis caused by unfettered capitalism? Did market fundamentalism and deregulation open the door to excessive risk-taking? Did greedy people on Wall Street deliberately ignore warning signs? Were government bailouts during the crisis necessary? Has there been adequate regulatory reform to prevent future crises? Unfortunately, our society's answers to these important questions are basically wrong.

The 2008 financial crisis was not caused by free market capitalism run amok. The crisis was not created by deregulatory zeal. It wasn't primarily due to greed on Wall Street. The crisis was not simply created by people's "irrational exuberance" or "animal spirits." And perhaps, most importantly, it did not require bailouts and thousands of pages of new regulations to fix. If you are surprised by these claims, you're not alone. These misconceptions are all part of the commonly held "conventional wisdom."

The 2008 financial crisis is, and will remain, a pivotal event in our nation's history. Not only was it an economic catastrophe for the United States, the crisis caused the entire global economy to slow in 2008 and contract in 2009, causing financial hardship and suffering for millions of people who lost jobs, houses, or retirement savings. Because of its magnitude—and more importantly, because of the misdiagnosis of the conventional wisdom as to its cause—the crisis also generated significant regulatory changes affecting our lives today. Despite reforms by the Trump administration, the new regulatory framework ushered in by the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) will persist for years to come. The crisis and the conventional wisdom about it have also had a profound effect on how people view markets, finance, and government—most noticeably fostering skepticism of free markets and free trade.

Unfortunately, the regulatory changes and heightened skepticism of free markets have made the country, and the world, less prosperous. For

the first several years following the crisis, we had a so-called “jobless recovery.” The average 2% rate of annual economic growth during the past ten years was less than half the average annual economic growth following the ten previous recessions: 4.3%. The bailouts and the new financial regulations created by Dodd-Frank have also led to rapid consolidation in the banking industry. Costly regulations and barriers have also limited the number of new banks entering the industry. From 1997 to 2007, an average of 150 commercial banks were chartered every year. According to the Federal Deposit Insurance Corporation (FDIC), from 2008 to 2015, only 36 new commercial banks were chartered, **total**. Fewer new banks reduces financial innovation, competition, and thereby, growth in the economy.

The amount of assets held by the ten largest banks in the U. S. has increased by over 50% from 2007. The three largest U.S. banks, JP Morgan Chase, Wells Fargo, and Bank of America, are bigger than ever in terms of assets (~\$5.5 trillion in 2007, ~\$7.5 trillion in 2017) and market capitalization (~\$400 billion in 2007, ~\$966 billion in 2017). These three all acquired large parts of failing firms during the crisis. JP Morgan acquired most of Bear Stearns and most of Washington Mutual. Bank of America acquired Countrywide Financial and Merrill Lynch. Wells Fargo acquired Wachovia.

Furthermore, the unprecedented artificially-low interest rates promoted by the Federal Reserve and other central banks have fueled increasing consolidation in other industries by financing record amounts of mergers and acquisitions. From 2014-2017, global mergers and acquisitions averaged over \$5 trillion a year according to Statista. The frequency of M&As over this period in the U.S. also increased approximately 25%, according to the Institute for Mergers, Acquisitions and Alliances. Instead of making us safer, policy makers relying on the conventional wisdom misdiagnosed the causes of the crisis and so implemented incorrect solutions which have slowed the economy, made it less competitive, and sowed the seeds for future financial crises.

The slow recovery and increasing consolidation within various industries are the result of markets that are less free, less dynamic, less efficient, and less productive than they could be. Thousands of new rules created by various regulatory agencies—especially financial regulators—have made larger companies more competitive relative to smaller ones because the costs of understanding and complying with regulations is much smaller as a percentage of their total expenses. Consolidation driven by regulatory change means fewer competitors, not because the larger

firms are more efficient and productive in serving the consumer, but because they can deal with government rules and bureaucrats more easily.

The second major reason markets are less productive and dynamic than they could be is because government responses during the 2008 financial crisis rewarded less productive firms with bailouts while taxing more productive firms to help pay for them. In a free market system, companies that use resources poorly lose money and go out of business while companies that use resources well have high profits and expand their business. This healthy check of profits and losses was upended in 2008. Leaders of the Federal Reserve and the Treasury argued that the whole financial system was collapsing and that some firms were “too big to fail.” So the government didn’t let them fail.

Another part of the conventional wisdom is that the 2008 crisis was caused by too little regulation and oversight. When Lehman Brothers failed because the Federal Reserve and the Treasury unexpectedly refused to bail them out, panic ensued. Lehman’s failure began the financial crisis and credit markets collapsed. The entire western world was at risk of imploding. It was only because of the swift and dramatic government bailouts, especially TARP, that the U. S. didn’t enter another Great Depression—or so conventional wisdom would have us believe.

But there is good reason to doubt that the conventional wisdom gets the story right. In fact, evidence suggests that haphazard government interventions may have made the crisis much worse than it needed to be—which means we would all be better off if the government had done less in the first place. If that is true, then the conventional wisdom is pernicious, both because it is wrong and because it has been used to justify unnecessary policies, regulations, and interventions in the economy that have made the economy less productive, have created even bigger banks, and have generated systemic risk in financial markets.

This book synthesizes and then challenges the conventional wisdom about the 2008 financial crisis. It explores alternative explanations for what caused the crisis, how the crisis played out, and what lessons we should have learned. To evaluate the competing explanations, we must have a good understanding of the timeline and the mechanics of the crisis. We will examine both in detail before moving into competing explanations of the crisis. You may also be helped by the glossary of financial terms and institutions at the back of this book.

I want to present both sides of the story as best I can so that you can weigh the different explanations against each other. The conventional wisdom is not monolithic, or even compelling, on many points. That means there are serious flaws or holes in the current leading explanations

of the 2008 financial crisis, even a decade later. Whether or not you find all of my arguments convincing, I hope you learn a great deal by reading this book and will at least take the conventional wisdom with a large grain of salt.

Book Chapter Summaries

Part 1 – What Happened?

The first part of the book outlines what happened before, during, and after the 2008 financial crisis.

Chapter 1 (The Current Landscape) talks about the legacy of financial crises in general, and of the legacy of the 2008 financial crisis today. Crises tend to generate significant social and political change, much of it negative. We are still dealing with the effects of the 2008 financial crisis in terms of lower labor force participation, lower productivity, slow economic growth, and increasing consolidation of corporate America. We are also living with the social consequences of political polarization and rising anti-market sentiments.

Chapter 2 (How Ordinary Americans Experienced the Crisis) delves more deeply into specific economic consequences of the 2008 crisis. It discusses the loss of trillions of dollars of wealth. It looks at changes in home ownership, employment, wages, rental markets, and other economic data. The goal is to show how the financial crisis affected ordinary people as well as the overall economy.

Chapter 3 (Chronology of the Financial Crisis) presents a detailed timeline of the major events leading up to, during, and following the stock market crash in the fall of 2008, including: the seeds of the crisis in the 1990s and early 2000s, the initial panic in credit markets in 2007, the widespread failure of loan origination companies, the declining value of stocks, the failure of Bear Stearns, Fannie Mae, Freddie Mac, Lehman Brothers, Washington Mutual, and other financial institutions, the actions taken by the Federal Reserve and the U. S. Treasury, and Congressional laws, including the 2008 tax rebate, the Troubled Asset Relief Program (TARP), and the American Recovery and Reinvestment Act of 2009.

Chapter 4 (Financial Mechanics of the Crisis) explores what happened in financial markets during the crisis. It includes a brief explanation of the process by which individual mortgages are bundled into mortgage-backed securities (MBS) and other financial derivatives, traded, repacked into collateralized debt obligations (CDOs) and CDO², and then insured through Credit-Default Swaps (CDS) and other guarantees.

Chapter 5 (Political Responses to the Crisis) discusses the political interventions during the crisis in more detail. It includes the reasoning and actions of the Federal Reserve, the reasoning and actions of Secretary Paulson and the Treasury Department, and the other government interventions in late 2008. I also consider the political fallout of the financial crisis in terms of changed attitudes towards financial markets and globalization, as well as changes in regulatory and legal oversight—including the massive, 2300-page Dodd-Frank Wall Street Reform and Consumer Protection Act and the creation of the Consumer Financial Protection Bureau.

Part II – Why did it happen?

The second part of the book assesses the conventional wisdom against competing explanations of the financial crisis.

Chapter 6 (Conventional Wisdom: The Free Market Failed) surveys several of the most popular explanations of the crisis—both among economists and among the general public. I argue that some combination of these explanations makes up the “conventional wisdom” about the crisis—namely that the crisis was caused by deregulation, market failure, and the Federal government not being aggressive enough in stopping it. Letting Lehman Brothers fail is generally seen as catastrophic and the point at which financial markets, if left to themselves, would certainly have collapsed.

Chapter 7 (Minority Reports) presents several competing alternative explanations and compares them to the conventional wisdom. Minority perspectives on the crisis emphasize the role of the federal reserve in stoking the housing bubble by keeping interest rates artificially low. They also explain the role of various government agencies and Congress in encouraging the deterioration of mortgage standards—and the housing mania more generally—through the Community Reinvestment Act and legal changes to Fannie Mae and Freddie Mac’s standards for purchasing mortgages. Finally, most alternative explanations highlight how misregulation encouraged banks and the financial sector more broadly to build up risk in mortgage securities, thus creating systemic risk and error.

Chapter 8 (Assessment of Competing Explanations) presents my views on the debates between the conventional wisdom and the dissenters. I argue that, on the whole, the minority explanations do a better job identifying the causes of the 2008 financial crisis. I also present evidence showing why government-induced uncertainty and instability contributed to the severity of the financial crisis in the fall of 2008. Rather than

stabilizing markets, government interventions, like bailouts, extensive lending facilities, brokered mergers, and so on, actually destabilized markets. My arguments cast new light on the financial crisis and suggest that almost all of the government responses during and after the crisis, as well as subsequent changes in public opinion, have been harmful rather than helpful.

Part III – What Now?

The third part of the book brings us to today. Given that the financial crisis occurred, and given that the conventional wisdom about what caused it seems deeply flawed, what kind of world do we live in today and how can we reverse the damage done by our political and social responses to the crisis over the past ten years?

Chapter 9 (How Things Have Changed Since the Crisis) examines the political, social, and cultural responses to the 2008 financial crisis, including the new laws and rules imposed on the financial sector, some of the common rhetoric used against banks and against Wall street by politicians, some of the long-run economic consequences, especially on labor and financial markets, and the changes in public opinion and economic orthodoxy—particularly the sharp turn away from free markets and trade liberalization to nostalgia for the more controlled and more “equitable” era of the 1950s and 1960s.

Chapter 10 (What We Have (Not) Learned) pulls together lessons we should have learned from the crisis. These lessons include recognizing the importance of mis-regulation, moral hazard, and market distortion through policy intervention. But since the conventional wisdom is flawed, this chapter also spends time discussing the *wrong* lessons most people have learned—namely that banks and financial institutions need to be more heavily regulated and more closely monitored; as well as the idea that people need to be protected from making unwise decisions.

Chapter 11 (What We Should Do) Given the mistaken interpretations of the crisis and the mistaken policy that flowed out of those interpretations, what can we do to mitigate the damage? This chapter focuses on broad guidelines and general approaches to improving our economic and social outlook rather than recommending specific policies. We need to understand the general principles that create a healthy (or unhealthy) financial system. This chapter emphasizes the distinction between free markets and regulated markets. It also points out that higher economic growth outweighs periodic crises – and that governments, however well-

intentioned, are much more likely to do harm than good when they intervene in heavy-handed or haphazard ways.

As you can see, we have a lot of ground to cover. But this book will give you a comprehensive overview of competing explanations regarding the conditions that created the crisis, what happened during the crisis, and what kinds of solutions will reduce the likelihood of future crises. The conventional wisdom that free markets or capitalism failed, and that greater regulation and restrictions are necessary, is mostly wrong. At the end of the day, government interventions created most of the conditions for the crisis and fostered uncertainty, panic, and inefficiency both during and after the crisis. Not only did these interventions make the crisis worse, they slowed economic growth and reduced prosperity for the entire decade that followed. This book attempts to set the record straight.

CHAPTER ONE

THE CURRENT LANDSCAPE

The 2008 Financial Crisis will be a pivotal event in financial market history for decades to come. Economist Mark Zandi says, “I’m confident that the subprime financial shock will be judged the most significant financial event in our nation’s economic history.”¹ What people believe caused the crisis has already influenced the decisions of legislators, regulators, investors, and “too big to fail” banks. Was the crisis caused by bankers’ greed and unfettered capitalism? Was it a failure of regulators who fell asleep at the wheel? Or was it the unintended result of hundreds of regulations distorting financial and housing markets for decades? The reigning narrative, or conventional wisdom, of what happened during the crisis will shape financial and monetary policy for the foreseeable future.

The conventional wisdom has already had tremendous consequences. It justified thousands of pages of new legislation and tens of thousands of pages of new regulations. It greatly expanded the oversight and authority of the Federal Reserve and other financial regulators. The various regulations imposed on markets during and after the crisis have dramatically increased compliance costs, led to rapid consolidation within the financial industry, and generally slowed economic growth.

But the conventional wisdom that Lehman’s failure triggered the worst part of the 2008 financial crisis and that government interventions stabilized the market rests on shaky ground. Instead, the evidence suggests that repeated government interventions in the market, especially the Troubled Asset Relief Program (TARP), contributed significantly to the largest declines in the stock market by creating uncertainty, fostering panic, and making markets less dynamic by thwarting market mechanisms like profits, losses, and price signals. This had the effect of both deepening the crisis in terms of falling asset prices and less lending, as well as making the market less dynamic after the crisis—the so-called “jobless recovery.”

The conventional wisdom’s narrative leaves out many important factors and places too much emphasis on the wrong ones. In fact, it gets the story almost entirely *backward*. If anything, government intervention

worsened the crisis, not lessened it. There were dozens of interventions in 2008 that created legal and regulatory uncertainty, fostered panic, and thwarted profit and loss signals.

The world changed after 2008 and so did the fortunes of many people. Although the vast majority of people saw their income and wealth decline, there are stark contrasts in how their wealth and income rebounded. People's beliefs about markets and public policy shifted as well. These changes in the wake of the 2008 financial crisis should not be surprising. There are clear precedents for significant social, political, and economic change following major financial crises in the U.S. in the early 20th century. The two most important examples of this shift are the banking crisis of 1907 and the banking crisis following the 1929 stock market crash.

The 1907 banking panic followed a long line of banking crises post-Civil War, in 1873, 1884, 1890, 1893, and 1896.² There had also been a series of banking crises before the Civil War too. In fact, in the 19th century, the U.S. had one of the most unstable banking systems in the world. Many people attribute this instability to free “wild cat” banking that had few barriers to entry, relatively little regulation, and no central bank. But banking in the U. S. during the 19th century was decidedly *not* free in several important ways.

First, and most importantly, there were significant legal restrictions preventing banks from branching across state lines, or even branching within the same state. One major part of the controversy surrounding the 1st and 2nd Banks of the United States was the fact that this national bank could create branches across states lines while other banks were not. Branching allows banks to diversify and spread two important forms of risk: liquidity risk (that is, running out of cash in the present even though you have significant assets and significant future cash income) and credit risk (the possibility that some of your loans or other assets will default or decline in value). These two forms of risk were relevant to the 2008 financial crisis too.

Branching allows banks to be larger, more stable, and more efficient. They can transfer funds between branches and make a greater variety of loans to a greater variety of customers. Lack of branching creates fragility and instability—which resulted in crisis after crisis in the 1800s. Instead of a branch banking system, the U. S. had a unit banking system, resulting in “27,399 banks in the United States” by the time the Federal Reserve was created in 1914!³ This differs markedly from the experience of other developed countries in the 19th century.

Other factors contributed to the instability of the U. S. banking system too. One was that states, and then the Federal government, required banks to buy their debt before they could issue more loans. This policy restricted their lending and note issue to how much government debt they held. A second contributing factor to instability in the 1800s was that state governments regularly allowed banks to suspend redemption of bank notes and deposits with minor penalties. Normally, when a company can't meet its obligations, say if it lent money too aggressively and ran out of reserves, it declares bankruptcy. These state policies, however, allowed most banks to avoid bankruptcy, which encouraged banks to issue riskier loans and increase their leverage. This behavior made the whole banking system far more susceptible to crises. Based on these factors, and the many U. S. banking crises in the 1800s, it seems like the banking system in the U.S. was practically *Fragile by Design*.⁴

The crisis of 1907 followed this long string of banking crises. Even though this crisis was not as bad as previous ones, it fomented significant change. There were several reasons why the 1907 crisis triggered changes in ways the previous crises had not. First, the antitrust movement was in full swing. The end of the 19th century had seen unprecedented increases in the size of corporations (or trusts) and the size of individual businessmen's fortunes. These trusts ranged from oil (Standard Oil) to steel (U.S. Steel) to railroads (Northern Securities Company). Wall Street, and the king of Wall Street at the time, J. P. Morgan, were involved in creating and financing many of these trusts. In the midst of growing skepticism and hostility towards large concentrations of wealth and influence in private banks, the 1907 crisis saw something else unusual—the federal government had to effectively be bailed out by J. P. Morgan. Ordinary citizens and politicians decided it was unacceptable to have the fate of the financial system, or even government solvency, depend on one man.

The National Monetary Commission was created to assess the problems of banking in the U.S. and propose a solution. They ultimately proposed creating a central bank in the United States—the Federal Reserve. The structure of the Federal Reserve System differs significantly from other central banks. It has twelve regional reserve banks based in Boston, New York City, Philadelphia, Richmond, Atlanta, Cleveland, St. Louis, Chicago, Minneapolis, Dallas, Kansas City, and San Francisco. The Board of Governors is based in Washington, D. C. Both the regional banks and the Board engage in regulating banks, but they tend to do so differently. The Board is much like any other political and bureaucratic regulatory agency, but the regional banks still have some element of competition and

market discipline in how they deal with the banks they regulate.⁵ This is due in part to the fact that the member banks “own” the regional reserve banks and have input into their governance.

The creation of the Federal Reserve was one of the most important changes to the U.S. financial system. It eventually paved the way for suspending the gold standard, when paper currency could be redeemed for a fixed quantity of gold on demand, and introducing a currency without any backing (fiat currency), introducing increasing levels of bank regulation, and creating sustained inflation.⁶ Besides the creation of the Federal Reserve System in 1913, which changed the U.S. banking system permanently, the 16th and 17th amendments to the Constitution, allowing the levying of federal income taxes and requiring the direct election of senators, were also ratified. Blaming these additional amendments on the 1907 banking crisis alone would be a stretch, though it’s an open question as to whether there would have been enough political and popular support for the amendments if the 1907 crash hadn’t taken place.

The next major banking crisis followed the 1929 stock market crash. The crisis lasted several years and “between 1930 and 1933 more than 9,100 banks (38 percent of all banks) suspended operations.”⁷ As economists Milton Friedman and Anna Schwartz point out, the result of this massive banking crisis was that the money supply declined by a third, resulting in significant price declines.⁸ This also marked the beginning of the Great Depression, a period of perhaps the most significant changes to the Federal government in U.S. history. Again, not everything can be pinned on the banking crisis, but in this case, the banking crisis was clearly the most important economic cause of the Depression, among other contributing factors such as the Smoot-Hawley tariff and an alphabet soup of federal programs seemingly designed to hamstring the market and delay recovery. These included restrictions on output, restrictions on wages, and restrictions on prices. Many economists argue that lifting these restrictions after WWII, not the war itself, brought the Great Depression to an end.

For our purposes, I want to highlight the major changes in financial regulation during the Depression that would ultimately contribute to the housing bubble in the early 2000s and the financial crisis of 2008. These include the formation of national deposit insurance, the creation of the Federal Housing Administration, the creation of the precursor of Fannie Mae, and of course, the Glass-Steagall Act that divided investment banking activity from commercial banking activity. Now is not the place to describe the history and influence of each of these programs. I simply want to highlight again how a serious banking crisis fomented significant legal and regulatory change that had lasting effects.

The 2008 financial crisis had a similar influence on laws and regulations. In its wake followed the largest stimulus bill in U.S. history, the largest financial regulation bill in U.S. history, and the largest healthcare regulation in U.S. history. We'll spend more time on financial regulation later, but suffice it to say that thousands of new pages of regulations have changed how financial institutions do business, and not necessarily for the better. When historians look back on the Dodd-Frank Wall Street Reform and Consumer Protection Act, they will note the supreme irony of it being authored by two of the politicians most responsible for creating the Financial Crisis in the first place. Congressman Barney Frank and Senator Chris Dodd.

For example, in 2003, Barney Frank said, "I want to roll the dice a little bit more in this situation towards subsidized housing." And in 2008, only months before Fannie and Freddie were taken over by the government because they were bankrupt, Congressman Frank said, "I think this is a case where Fannie and Freddie are fundamentally sound, that they are not in danger of going under." Senator Dodd also said, in 2004, that "This [Government Sponsored Housing] is one of the great success stories of all time." Yet somehow these two men have their names on the biggest overhaul of financial regulation in U. S. history.

The 2008 financial crisis had significant economic consequences. A few of the most important were a significant increase in unemployment from 4.4% to 10%, or an increase of about 2.5 million unemployed people, declines in the value of stocks and houses which reduced most people's wealth, and significantly lower growth rates in the economy compared to previous recoveries. All these factors combined to reduce the well-being of most Americans.

After the 2008 financial crisis ended, policy makers were concerned about preventing unemployment from rising. This was a significant part of the Obama administration's argument for the American Recovery and Reinvestment Act (ARRA). In a report from the President's Council of Economic Advisers, the administration warned that without the stimulus, unemployment could rise as high as 9%. The stimulus would put more people to work and keep unemployment from passing 8%. Unfortunately, such estimates were inaccurate and unemployment eventually reached 10%, exceeding the White House's worst-case scenario, even though the stimulus package was passed. Perhaps things would have been even worse without the stimulus package, but exceeding the worst-case scenario estimate (without a stimulus) should give advocates of stimulus some pause as to whether such programs contribute to economic growth and reduce unemployment.

Besides unemployment reaching double digits, there were two other related problems. One was that unemployment remained elevated for an unusually long period. This high persistent unemployment was partially due to increases and extensions of unemployment insurance and disabilities benefits.¹⁰ But it was also the result of slower economic recovery and growth.

Another problem revealed in the aftermath of the crisis was a noticeable decline in the number of people, especially prime-age males, in the workforce. Not only did the number of people who were searching for a job while not having one increase (unemployment), but the number of people without a job who were *not* looking for a job increased (lower labor force participation). These problems also don't include the issue of "underemployment"—that is, people taking jobs requiring less skill and with less pay than their experience or education would normally warrant.

Employment problems, along with declines in the value of common assets, such as houses and stocks, have contributed to some measures of income and wealth inequality. It is no coincidence that Occupy Wall Street and the Bernie Sanders movement have attracted so many followers in a post-financial crisis world. It is also not a coincidence that Sanders appealed to young, left-wing people, who have lived much of their lives in a post-financial crisis, low-growth world, rather than with older, left-wing folk who were more likely to support Hillary Clinton.

Who Was Harmed by the Crisis?

Elderly Americans nearing retirement with a large portion of their savings invested in stock portfolios saw the value of their investments fall by over 50% from the fall of 2007 to the spring of 2009. Let me illustrate the implications of this decline with a fictional character, Jim, who was nearing retirement in 2007. Jim's million-dollar nest egg, which he spent the last 30 years of his life building, could have declined in value to less than \$500,000. That's not money most people nearing retirement can replace through savings.

But I should note that this loss was initially only a "paper loss." Jim still owned just as much stock as before—it was simply worth less after the financial crisis because stock prices declined. If Jim sold his stocks at these lower prices, then his paper losses were "realized." Unfortunately, many people did sell their investments as prices were falling or near the bottom. But if Jim had simply held on to his stock investments, by January 2013—less than five years later—he would have had a million dollars

again. By August of 2017, those investments would be worth more than one-and-a-half-million dollars.

But retirees, or those with large stock investments, were not the only ones harmed by the crisis. Ordinary homeowners were harmed too. In the decade leading up to 2007-2008, housing prices across the country rose at unprecedented rates. On average, a house worth \$100,000 in 1999 would have sold for \$200,000 in early 2006, adjusting for inflation. By mid-2008, that house would only have been worth something near \$150,000. Interestingly enough, house prices have rebounded since the crisis and in 2017 surpassed the peak reached by the Case-Shiller index in 2005—meaning houses are more expensive today, on average, than at the peak of the housing bubble!

But in 2007-2009, a lot of ordinary Americans who borrowed money to buy a house found themselves with more debt than the house was worth. They were “underwater.” Many people also had mortgages they couldn’t afford. Defaults on mortgages, and subsequent foreclosures, spiked as people walked away from their house and their mortgage. But even those who didn’t default on their mortgage were far less wealthy (just like those with stock investments) after the crisis than before it.

Which leads to the final group of people harmed by the 2008 financial crisis: American workers. As you would expect, people who had lost money in the stock market or in their house—regardless of whether they “realized” those losses by selling their stocks or defaulting on their mortgages—cut back on their spending. That meant a temporary, though sharp, decline in the demand for all kinds of goods: shoes, clothing, cars, TVs, furniture, computers, restaurants, and so on. This dramatic decline in demand and consumer spending meant fewer sales. Businesses had to tighten their belts—frequently by laying people off. As a result, unemployment rose sharply during and after the 2008 financial crisis.

But even more important than declines in consumer spending was the dramatic decline in bank lending. As the financial crisis unfolded, it crippled banks’ willingness and ability to lend—leaving many companies without operating capital and making it difficult to start new ventures or to expand existing ones.

Although the crisis affected general groups of people, individuals had widely varying experiences. Someone nearing retirement with large stock investments that lost half of their value, who had borrowed money to buy an expensive house that also lost 20%-40% of its value, and who may have been laid off as people cut back on spending, would have been in a bad place. On the other hand, someone with little money in the stock market,

no house, and a stable job may have experienced hardly any negative impact from the crisis at all.

Political Responses to the Crisis

There were many political responses to the crisis, both regulatory and legislative. Congress passed the Economic Stimulus Act of 2008, the Emergency Economic Stabilization Act of 2008 (which included the Troubled Asset Relief Program – TARP), the American Recovery and Reinvestment Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, and others. Regulatory responses included bailouts, lines of credit, lending programs, stress tests, guarantees, etc. Some of these responses will figure prominently in later chapters. But here I will address two specific legislative responses, the reasoning behind them, and what evidence we have of their effectiveness. As unemployment rose in late 2007 and throughout 2008 and 2009, politicians responded with stimulus policies to revive demand.

The two stimulus plans were supposed to stabilize the economy. Traditional Keynesian economic thinking argues that both economic expansions and contractions generate self-reinforcing mechanisms that amplify the booms and busts in the economy. With rising unemployment and slowing economic activity, many economists on the left and the right were concerned that the contraction, if nothing was done, could become far worse than it needed to be.

For almost a century, economists have described the operation of the economy by using the following equation of national income accounting: $\text{Annual GDP} = \text{Investments} + \text{Consumption} + \text{Government Spending} + (\text{Exports} - \text{Imports})$. John Maynard Keynes, in his book *The General Theory of Employment, Interest, and Money*, explains how the economy can move into disequilibrium for sustained periods of time. There are two mechanisms in Keynesian thought that generate self-reinforcing cycles: animal spirits in investing and the paradox of thrift in consumption. He argued that investors are often driven by animal spirits and herd behavior; bull and bear markets for example. Keynes argued that psychology was an important factor in investment. Investors don't trade solely or primarily on the long-term underlying fundamental value. Instead, they are concerned about short-term price movements, which are driven by what other people think and do. As some people become nervous and start selling their stock, prices begin to fall and their fear begins to spread and becomes amplified. In such a situation, investment can decline precipitously, more than may

be warranted by the initial negative shock to the economy. If investment declines, then GDP declines, assuming no other changes to the economy.

The second aspect of Keynes' theory that explains the self-reinforcing cycles of booms and busts is called the Paradox of Thrift. Stated simply, the paradox of thrift is that saving can be a good decision for an individual, but a bad decision for society. As people begin to save more of their income, whether because their net worth on paper has declined, they are concerned about losing their job, or they have lost their job, they spend less money on consumption. As spending on consumption declines, businesses see their revenue and profitability decline while their inventories increase. The rational response of business owners is to cut back on orders (meaning less revenue for other companies) or cut back on their own costs and production (usually by reducing hours or laying off workers). Either possibility reduces people's incomes, further increasing their desire to save, which results in less consumption spending and the cycle continuing. As consumption declines, GDP declines, again assuming no other changes.

To counteract the problems of animal spirits and the paradox of thrift, Keynes argued governments should increase their spending; hence the stimulus plans of 2008 and 2009. President Bush proposed and eventually signed the \$168 billion Economic Stimulus Act of 2008. The idea was that sending millions of checks to Americans would cause them to increase their spending on goods and services, thereby reversing the paradox of thrift and reducing unemployment.

Unfortunately, it seems like none of the Bush advisors had studied economic theory written after the 1960s. If they had, they would have known about rational expectations and the permanent income hypothesis. People are unlikely to increase their consumption dramatically with a temporary boost in income when they expect to pay higher taxes in the future to offset their current benefit. People also tend to smooth consumption over time, distributing one-time windfalls over a long period.

President Obama proposed and signed the more than ***\$800 billion*** American Recovery and Reinvestment Act of 2009. The goal was similar to the tax rebate program. But instead of giving citizens money to spend on goods and services for themselves, government agencies and officials decided how to spend the money. That overcomes the rational expectations and permanent income hypothesis issues, but it doesn't address the problems of crowding out and waste. Neither of these programs prevented unemployment from rising. And as I will discuss later, these programs likely made the problem worse, not better, by making the

economy less dynamic and less efficient because they diverted capital to less productive projects and encouraged cronyism.

But if nothing were done during the economic decline, how do we escape the trap of animal spirits and the paradox of thrift? How might the negative downward spiral of people getting poorer, then cutting back on consumption leading to more layoffs, which makes people poorer, naturally end? The short answer is that prices will adjust. It is true that companies are selling fewer goods and services, often at lower prices, and therefore are seeing their revenue fall. But revenue is only half the story. What about their costs? They are laying people off, which reduces their costs and their production to some extent. That may be enough to offset their decline in revenue and put them in the black again. But many of their other costs will decline too—rent, materials, etc. As overall production slows in the economy, the demand for resources from raw materials to capital goods to real estate also falls—lowering the price at an accelerating rate. Eventually falling resource prices will outpace falling sales—leading to higher profits and thereby greater demand for workers—which is when firms start hiring more people and unemployment declines. One major problem with policy interventions to stop the downward cycle is that they explicitly or implicitly prevent many input prices from falling.

Changes in Public Opinion

The 2008 financial crisis caused major shifts in public opinion about the role of government and the role of financial institutions in society. Changes in public opinion can be seen in the rise of two countervailing groups: Occupy Wall Street and the Tea Party. These movements represented increasing hostility and disgust with the banking system and financial organizations from the left, and outrage over the massive growth in arbitrary government regulation, spending, and debt from the right. Looking back over the past decade, it is not hard to see how these two reactions to the financial crisis contributed to the highly partisan, highly divisive election of 2016.

Other changes included the rapid increases in the level of arbitrary discretion used by non-elected bureaucrats in handing out billions of dollars in subsidies and forcing companies to engage in certain practices. There was also an explosion in the number and intrusiveness of federal regulations in all industries—especially finance and banking.

But beyond these specific movements, the 2008 financial crisis sparked a crisis of faith and a period of soul-searching for economists, politicians, and ordinary Americans. What actually happened during the crisis? How

did we get there? What does Wall Street actually do for America? Do markets really promote our well-being or do they benefit a few people at the expense of everyone else? Are markets inherently unstable and prone to periodic catastrophes? And finally, what can, or should, we do through public policy to improve our circumstances and protect ourselves from Wall Street, globalization, and general market fluctuations?

This book addresses many of these questions. It focuses especially on answers given by prominent economists and public officials. These answers have given rise to what John Kenneth Galbraith mockingly called the “conventional wisdom” in his 1958 book *The Affluent Society*. He described conventional wisdom as the uncritical acceptance of explanations simply because they are the most popular or common views. Yet with regard to the 2008 financial crisis, the conventional wisdom is mistaken in several important ways and has justified bad policy responses and bad laws that exacerbated rather than relieved many of the underlying problems that gave rise to the crisis in the first place.

Popular backlash to the 2008 crisis includes much more than disillusionment with the financial system. Skepticism of global trade, of technology, and of business, in general, has risen. Again, the 2016 campaign rhetoric is instructive here. The main candidates moved away from the free trade consensus of the previous three decades. The phenomenon of Bernie Sanders’ primary campaign revealed how deep the skepticism of a market-based economy runs, particularly with the concern that Wall Street seems to be calling the shots in Washington—a point amply demonstrated during the financial crisis—and that the current system arbitrarily awards billions of dollars to the top 1% at the expense of everyone else.

There is a great deal of hostility and fear toward Wall Street, even though banking and financial regulations are at an all-time high! The passage of Dodd-Frank in 2010 has led to an explosion in the number of financial regulations—many with criminal sanctions. In fact, the 2,300-page bill was still generating new rules and regulations six years after its passage. Besides the rules flowing out of the behemoth legislation, various regulating agencies have also continued adding new rules for financial institutions. Although there was some movement in early 2018 to roll back these regulations and which financial institutions had to comply with them, most remain in place.

The Problem of Misdiagnosis

The 2008 financial crisis created a noticeable change in economic orthodoxy. There has been a resurgence of old economic dogmas about asset bubbles, panics, hysteria, animal spirits, irrational exuberance, market failure, and the inherent instability of unfettered market capitalism. These theories downplay human rationality as well as the power of market signals to check erratic behavior and correct mistakes. They mostly ignore the entrepreneurial reward for solving market failures privately. Such views naturally rely on laws and regulations to “fix” market problems and to “protect” consumers, investors, or workers.

But if the diagnosis of irrationality, animal spirits, and market failure as the root causes of the financial crisis is wrong, then we have very little reason to believe that our new laws and regulations fixed the problems or will prevent future crises. In fact, I argue that it was primarily bad rules and laws that created the conditions of the financial crisis in the first place *and* which contributed to its duration and severity. If that is true, then the recent prescriptions of many economists, and the recent actions of politicians and bureaucrats, have likely made our economic situation worse and made a future crisis more likely. But before we can evaluate the merits or demerits of the conventional wisdom, we need to get a good handle on what the 2008 financial crisis was, its mechanics, and how it affected people.

Notes

¹ Zandi (2008), *Financial Shock* pg. 8.

² Calomiris & Haber (2014), *Fragile by Design* pg.183.

³ Ibid, pg 184.

⁴ Calomiris & Habor (2014), *Fragile By Design: The Political Origins of Banking Crises and Scarce Credit*; see also Vera Smith (1936), *The Rationale of Central Banking* and Lawrence H. White (1984) *Free Banking in Britain: Theory, Experience, and Debate, 1800-1845*.

⁵ Mueller (2016), "Public and Private Institutions in the Federal Reserve."

⁶ Selgin, Lastrapes, & White (2012), "Has the Fed been a failure?"

⁷ Calomiris & Haber (2014), *Fragile by Design* pg. 189.

⁸ Friedman & Schwartz (1967), *A Monetary History of the United States, 1867-1960*.

⁹ Boettke & Horowitz (2009), *The House that Uncle Sam Built*.

¹⁰ Mulligan (2012), *The Redistribution Recession*.

PART I -
WHAT HAPPENED?

CHAPTER TWO

HOW ORDINARY AMERICANS EXPERIENCED THE CRISIS

The previous chapter summarized some of the general ways in which the crisis affected different groups of Americans. This chapter dives more deeply into the details. It provides a snapshot of what was happening in the stock market, housing market, and the labor market from 2007-2009. The changes over this period were bad for most people and catastrophic for many.

Stock Markets

Most people participate in the stock market without fully understanding it or even realizing that they are participating in it. If you have any kind of retirement account, you most likely own stock. If you are part of a pension program, odds are good that some of your contributions go toward purchasing stock. If you own mutual funds or ETFs, you are invested in stocks. Shares of stock simply represent ownership of a company. Owning shares entitles you to a portion of the firm's future profits, which are often paid in dividends. But most companies choose to reinvest all their profits in the company rather than pay dividends. In that case, the shareholder benefits because the company is becoming more valuable—if the profits are reinvested well, that is—and so your piece of ownership of the company, your share, increases in value too. The primary gain from holding stock comes through the increase or appreciation of the stock price. Conversely, when the price of stock falls, people think they have lost money.

While it is true that the monetary value of people's stock portfolio changes as the price of their shares changes, they do not actually realize their gains or losses until they sell their shares. This means that gains and losses are only temporary until they are actually realized. Remember that having stock shares means owning a piece of a company. I don't own less of a company when the share price falls. Instead, a lower share price

means the market value of the company has declined. I have the same amount of ownership as before, but of a less valuable company.

Normally, the price of a stock is an accurate measure of the value of a company because the price incorporates the knowledge and expectations of thousands, or more likely millions, of people in the market. Economists call this idea the Efficient Markets Hypothesis. According to this theory, stock prices follow a “random walk,” which means you can never know what will happen to a stock price tomorrow because, if you did, you would choose to buy or sell today depending on whether you thought the price would be higher or lower tomorrow. But your action of buying or selling the stock will move the price towards what you expected the price to be tomorrow, only it happens today. Therefore, current stock prices reflect people’s expectations of the price tomorrow, and the day after, and the day after that.

People invest in two general ways. Fundamental value investing and momentum investing. Fundamental value investors hold stock in companies based on the expectation that those companies will be profitable in the medium and long runs. Therefore, they tend to hold stock for long periods of time. Active fundamental value investors research the fundamentals of companies, their assets, liabilities, competitors, growth prospects, etc. to come to their own determination of what the company is worth and will be worth. They then compare their assessment with the market price. If the share price is lower than their assessment, they buy. If it is higher, they sell.

Most of us do not actively trade stocks. We simply make regular contributions to our retirement, investment, or pension funds. Those contributions often go towards buying a variety of stock expecting companies to be profitable and to grow over time, causing the value of those shares to increase correspondingly. That is passive fundamental value investing. Fundamental value investing contrasts with momentum investing. Some investors, usually ones who have sophisticated models and follow stock prices closely, buy and sell stocks because they expect the price of the stock to change in the near future. Their assessments may not be based primarily on their views of the underlying fundamental value of the company. Instead, they may be trading based upon their expectations of what others will do, and how their actions will affect the price.

Momentum investing can be a tough game to make money at because of the Efficient Markets Hypothesis, but it is not impossible. However, momentum trading can be catastrophic under certain conditions, like a panic or a financial crisis. In that situation, momentum investors expect

prices to fall, so they sell, which contributes both to the price falling *and* to other people's expectations that prices will keep falling. This creates a downward cycle in stock prices, which reduces people's wealth on paper—which then creates other negative consequences in the economy like less investment, downsizing, and layoffs.

Real losses vs. Paper losses

During a panic, stock prices can fall below the real, long-term, fundamental value of their companies. It is important to distinguish between real losses and paper losses. The difference is important for individual investors, but it will be even more significant for understanding what happened to large financial institutions during the crisis. A paper loss means my wealth has declined, but only on paper. My stocks were worth a certain amount, but now they are worth less; I've lost value, but I haven't technically lost any money yet. My bank account isn't any smaller. A decline in dividends could reduce my future income, but usually they do not change as quickly as stock prices do. Furthermore, most people do not rely significantly on their dividend income. It is only when I sell my stock, at a lower price, that my losses are said to be "realized"—that is to say, they are fixed. The stock price continuing to fall won't affect my net worth anymore, nor will stock prices recovering give me any benefit.

And this leads back to an observation from the introduction. If someone had bought their stocks at the market peak in October 2007, their paper losses would have reached 50% by March 2009, but would have declined back to 0% by April 2013. The people who suffered real losses in 2008 and 2009 were those who sold stock during the panic. If they had simply held onto their stock, their losses would eventually have disappeared and then turned into gains. The same principle holds true for most homeowners over a longer period of time with more geographic variation. Housing prices recovered quickly in some parts of the country and slowly in others—especially in the "Sand States" like Nevada, Arizona, Florida, and California.

Although the difference between paper losses and realized losses is interesting, especially when considering how stock and house prices recovered after the crisis, changes in the overall stock market also signal general confidence or fear by investors about the current state of the economy and of the financial system. There are several different stock exchanges and they tend to move in tandem. The three most established exchanges, the Dow Jones Industrial Average (DJIA), the Nasdaq

Composite, and the Standards and Poor's (S&P) 500, all peaked in October 2007 and reached rock bottom on March 9, 2009.

Since it is much bigger than the other two, I will primarily use an index of the S&P 500 to describe the stock market. Table 2.1 shows the pre-crisis peak, the trough right after the crisis, when the S&P recovered its previous peak, and where the S&P was recently. The table also includes overall percentage changes and annual percentage changes from point to point. You can see that the stock market declined by an astonishing 57% from October 2007 to March 2009. The table also shows that it took four years from the trough before the S&P 500 returned to its pre-crisis high.

Table 2.1: S&P Performance after the 2008 Crisis¹

Date	S&P 500	Relative to Previous Period		Relative to Pre-Crisis Peak		Relative to Post-Crisis Trough	
		Total Change	Annual Change	Total Change	Annual Change	Total Change	Annual Change
10/10/2007	1565.15	N/A	N/A	N/A	N/A	N/A	N/A
3/9/2009	676.53	-57%	-45%	-57%	-45%	N/A	N/A
3/28/2013	1569.19	132%	23.4%	0%	0%	132%	23.4%
7/18/2018	2815.62	79%	11%	79%	5.6%	216%	13.1%

The table also shows the overall change and annual changes in the stock market beginning at the pre-crisis peak. You can see that one's annual return would have averaged 0% from October 2007 to March 2013. It took almost six years for the stock market to recover its previous high. But if you look at recent S&P 500 numbers, it turns out the average annual return from October 2007 to July 2018 was approximately 5.5% annually—modest by historical standards but certainly something. We can also assess how much the S&P 500 recovered from the trough after the crisis by March of 2009. The value of the S&P 500 more than doubled in the following four years. It more than tripled in value in just over nine years.

Most readers over forty probably remember the paper value of their investment or retirement portfolio plummeting in 2008. But for those with a less tangible connection to the stock market in 2008, remember Jim's situation from the previous chapter. On the eve of the crisis, he had a retirement account worth \$1,000,000 invested in an index of all the companies in the S&P 500. Less than a year and a half later, that account would have been worth \$420,000. Without doing anything, Jim lost over half a million dollars, at least on paper, which is probably multiples of his annual salary. Though few people had all of their wealth invested in an S&P index fund, just about everyone holding stocks saw their wealth decline significantly. Couple this with the losses people experienced with cratering housing values, and it is no wonder that most ordinary Americans were upset, scared, angry, and looking for someone, or something, to blame for this financial mess.

Housing

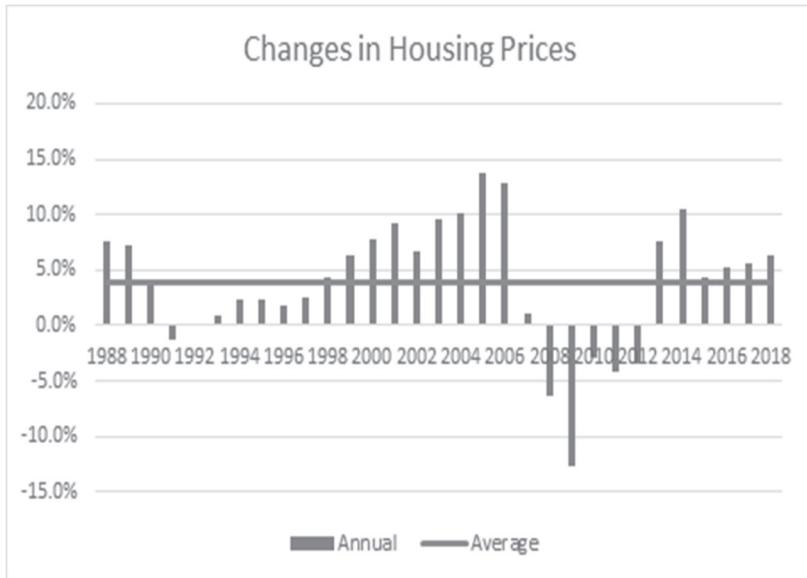
Everyone knows that housing played a key role in the 2008 financial crisis. There was a major housing bubble that popped leaving many homeowners with larger mortgages than their houses were worth. This created the subprime mortgage crisis. And most importantly for connecting the housing market to the financial system, there were a huge number of mortgage derivatives built on top of toxic mortgages. As the mortgages went bad, so did these derivative assets built on top of them.

Robert Shiller, a Nobel Laureate, has written extensively about asset bubbles, including in housing prices. An important misconception highlighted by Shiller and others that fueled the housing bubble was the idea that houses are good investments. Historically speaking, houses are not investment goods. They are consumption goods. You use them up as they deteriorate over time. Houses can seem like good investments because there are several reasons why their value and your equity can increase. You can make investments in houses. Remodeling your house or replacing the roof can increase its value. If an increasing number of people want to live in your area, the value of the land under your house increases and therefore so does the overall price of your house. Finally, making mortgage payments for decades builds equity. Even if your house has not increased much in value, the amount of wealth you have in your house has increased because you have been paying down debt against the house. But your house itself is not generating revenue or monetary returns.

What happened to housing prices during the bubble, during the crisis, and in the years that followed? Shiller created an index with Karl Case to

measure changes in house prices over time. For much of the past century, house prices have basically grown with inflation. They began appreciating faster than inflation in the past forty years or so. The idea that you can make money because your house appreciates is a relatively new idea of the past three decades. Looking at the Case-Shiller index (Figure 2.1), you can see that housing prices remained steady for decades until the late 1990s, at which point house prices exploded.

Figure 2.1: Case-Shiller Index Price Changes²



Author's Calculation Using Case-Shiller Index Data

To give you a sense of the size of this bubble, house prices increased by 2.6% in 1997, 6.4% in 1999, 9.2% in 2001, 9.6% in 2003, 13.8% in 2005, and then 1% in 2007 (see Table 2.2). People made huge amounts of money buying and selling houses over this period. At some point most people began to buy houses, not primarily because they had a good long-term value for living in them, but because they expected the price to rise in the near future and that someone would buy it from them. We had momentum trading in houses!

Table 2.2 - Annual increase in housing prices³

Year (Jan.)	Annual Change in Housing Prices
1996	1.80%
1997	2.60%
1998	4.30%
1999	6.40%
2000	7.80%
2001	9.20%
2002	6.60%
2003	9.60%
2004	10.20%
2005	13.80%
2006	12.90%
2007	1%
2008	-6.40%
2009	-12.70%
2010	-2.90%
2011	-4.10%
2012	-3.50%
2013	7.60%
2014	10.50%

And just as momentum trading in stocks can lead to a significant decline in prices due to panic, the same thing happened with houses starting in late 2005 and taking off in late 2006. By the time housing prices bottomed out in 2012, prices had declined by more than 20%. In some areas, such as particular cities in sand states, house prices declined even more! For example, Miami and San Francisco saw house prices decline over 30% while Phoenix and Las Vegas saw house prices decline over 40%.

The same trend can be seen in other important housing statistics such as the number of total home sales, number of new home sales, housing inventory (i.e. empty houses), new housing starts and even requests for new permits. For example, the number of new homes sold almost doubled from 1995 (667,000) to 2005 (1,283,000) then collapsed over the next six years until 2011 (306,000). They paint varying degrees of crisis, but no matter which housing market indicator you look at, it's obvious that the housing market collapsed from 2005 to 2011.

Foreclosure and short sale rates also increased dramatically during this period. Some of these foreclosures were the result of people over-extending themselves and being unable to sustain their monthly payments, especially if their monthly payments jumped due to adjustable rate mortgages. Other foreclosures were the result of people losing their jobs during the recession. But the most important driver of mortgage defaults was simply hundreds of thousands of people walking away from their houses and refusing to pay their mortgages. As David Bahnsen notes in his book *Crisis of Responsibility*, default rates were many times higher during 2007-2009 than they were in the 1990-1991 recession. That unexpectedly high default rate triggered major problems on Wall Street and in the financial sector in general.

Employment

As with most recessions, the unemployment rate spiked during and after the 2008 financial crisis. In the two and a half years before December 2007, unemployment had been at or below 5%. Yet by October 2009, unemployment reached 10%. This was a level of unemployment not seen since the early 1980s when unemployment reached 10.8%. Yet there were a number of differences in the composition of unemployment between the 2008-2009 recession and the 1981-1982 recession.

Although the unemployment rate in 2008-2009 was similar to the unemployment rate in 1981-1982, the length of time workers remained unemployed was strikingly different. Long-term unemployment after the

financial crisis was almost twice what it was in the early 1980s (Table 2.5, Figure 2.2). University of Chicago professor Casey Mulligan, among others, has suggested that various government benefit programs for the unemployed and the poor had a much greater impact on unemployment rates during and after the 2008 crisis than in earlier recessions.⁴

There have been important shifts in employment not captured by the unemployment rate. The unemployment rate simply compares the number of people looking for work with the number of people looking for work plus the number of people working. It doesn't include people *not* working and *not looking* for work. If someone lost their job during or after the crisis, then moved in with his parents or a girlfriend and was not seeking work, that person would not show up in the unemployment statistics. To get a sense of how many folks are dropping out of the labor force, we can look at labor force participation rates. As you can see in Figure 2.3, labor force participation has been declining since the late 1990s, and that decline accelerated during the crisis. It has begun to flatten in the past three years.

But many factors influence total labor force participation. It could be that more people are retiring because the population is getting older. It could be caused by an uptick in new children. There could be shifts in people's preferences for formal work vs. more informal work such as staying at home to raise children. While all those factors could have some effect, deeper studies of labor force participation rates confirm that the primary driver of the sharp decline during and after the crisis has been due to prime-age males leaving the workforce.⁵

Table 2.3: Comparison of Unemployment 1981-1982 vs. 2008-2009⁶

	Peak Unemployment Rate	Long-term Unemployment Rate
1981-1982 Recession	10.8%	2.6%
2008-2009 Recession	10%	4.4%

Figure 2.2: Unemployment Rate and Duration

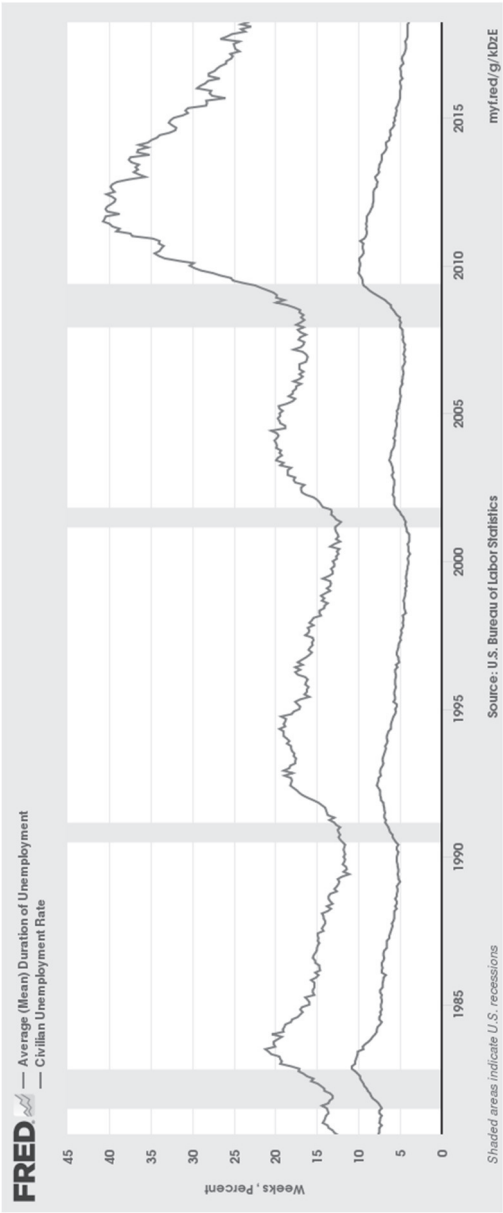
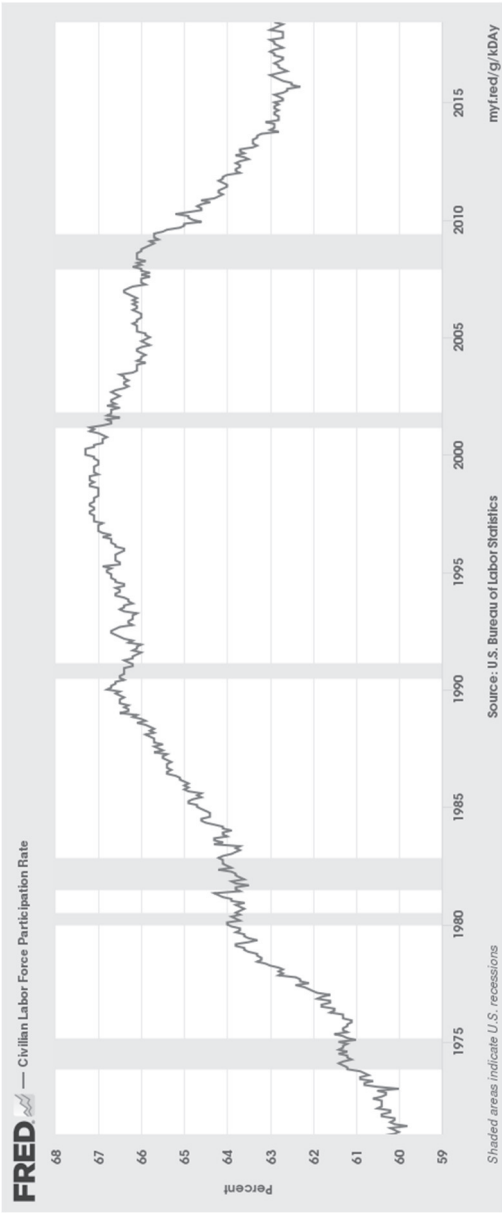


Figure 2.3: Labor Force Participation



Another long-term trend visible in the recent recession was increasing unemployment of white males relative to most other groups including women, African-Americans, and Latinos. As I mentioned earlier, the amount of men in the labor force has been on a slow decline for more than thirty years. The changes in labor force participation and relative status are part of much larger socio-economic shifts and structural changes in the economy that transcend the recent crisis. But the decline in working-age, mostly white, men in the labor force is connected to the opioid crisis, the resurgence of protectionism, and the success of Donald Trump, among many other cultural issues.⁷

Besides the spike in unemployment, which likely understates the actual amount of job loss due to men leaving the labor force, there have also been noticeable changes in terms of income and healthcare for different groups in society. This is part of what has been fueling an ongoing debate about income and wealth inequality in the U. S. I won't go into the details of this debate but I want to alert the reader to naive, misinformed, or downright deceptive claims about growing income and wealth inequality.

For example, many people do not understand the difference between income and wealth. Disparities in wealth are many times greater than disparities in income. In fact, the most extreme disparities in society involve wealth, not income. And even those extreme disparities are driven largely by the fortunes of the wealthiest one hundred people in the U. S. If you set them aside, the disparity in how much wealth the middle class has compared to the top 10% or top 1% is not nearly as extreme as many pundits make it out to be. However, most of the 100 wealthiest people in the U.S. did not gain their wealth primarily from salaries or income. Instead, their wealth is the result of creating companies: Facebook, Google, Amazon, Microsoft, Oracle, Koch Industries, Walmart, etc. These people are incredibly wealthy because they have created products that millions of people buy. They could hardly be said to have gained their wealth by taking from or impoverishing others.

Another shortcoming in conversations about income and wealth inequality is its lack of nuance. Many people think that the average income for poor people is about the same as it was in 1970. While it appears that the average income for wealthy households has grown significantly in the past fifty years, it hasn't grown much for poor households. But often the measure of income is for a household, or family, not for an individual person. These numbers do not account for the fact that the number of people in a household, especially a poor household, has declined significantly from the 1970s. So even though the average income per household is about the same, the average income per person has risen. And

if you consider not the number of people living in a household, but the average number of people working in a household, the numbers change even more. Not only has the size of the average household declined, the average number of people working in each household has also declined even more – at least among the poorest households in society. For the wealthiest households, the average number of workers has increased since the 1970s. The prevalence of two-income households means that the increase in household income for wealthier folks does not correspond perfectly with increasing wages.

Most people are also unaware that measures of where people fall in the income and wealth distribution are only snapshots in time—but people move over their lives. If you look at the age distribution of income, you find that young people are disproportionately likely to have low incomes and little wealth, while older people are disproportionately likely to have high incomes and high wealth. Mobility over one's life is far more important than where one falls on the income and wealth distribution at any given moment in time.

A final thing to note on the inequality and stagnating wages debate is that most people only consider workers' take-home wages. That is understandable since most people care primarily about their take home pay, but it ignores two other important factors in whether people's wages have been increasing or not. First, many people receive a significant part of their compensation in the form of non-monetary benefits like health insurance, life insurance, etc.

Second, and more importantly for low-wage workers who are less likely to have significant non-monetary benefits with their job, is the fact that the costs to businesses of hiring workers have been increasing over the past several decades. Compliance with labor laws has become more difficult, unemployment and disabilities taxes have increased, and payroll/FICA taxes have increased as well. So even though the poorest households have not seen major increases in take home pay over the past four decades, the amount of money businesses are spending per worker have increased significantly.

Regardless of one's stance on the income and wealth inequality debate, things were clearly bad during the financial crisis and the subsequent recession. Most people, rich or poor, were deeply affected. They may have lost a job, or seen the value of their house decline rapidly, or seen the value of their retirement portfolio decline by almost 50%. Such significant economic changes always create panic, discontentment, and anger. In democratic countries, that overall dissatisfaction usually results in major

legal and regulatory changes. This was as true of the 2008 financial crisis as it was during earlier crises, especially during the Great Depression.

Notes

¹ Author's calculations using Federal Reserve Bank of St. Louis data

² Author's calculations using the Case-Shiller national home price index

³ Ibid

⁴ Mulligan (2012), *The Redistribution Recession*

⁵ Eberstadt (2016), *Men Without Work*

⁶ Source: U. S. Bureau of Labor Statistics

⁷ For other books on the cultural crisis in the U. S. see Charles Murray's book *Coming Apart: The state of white America* and J. D. Vance's *Hillbilly Elegy*.

CHAPTER THREE

CHRONOLOGY OF THE FINANCIAL CRISIS

Before we can make much sense of competing explanations of the crisis, we must know the basic contours of what actually happened. In hindsight, the origins of the crisis stretch back to the New Deal and beyond. But this chapter sketches some landmark events from 2007-2009 to gain a sense of how the crisis unfolded. Of course, hundreds of relevant events happened over this period, but we'll focus on the most important ones.

2007

What marks the beginning of the 2007-2008 financial crisis? Most observers point to problems in a few specific credit markets in August 2007. In particular, BNP Paribas suspended three of its investment funds without warning on August 8th.¹ These investment funds held a type of mortgage derivative called mortgage-backed securities (MBS) that they were unable to sell at any price. But if an investment fund can't sell its assets, it cannot return money to its customers when they ask for it. In their public statements, BNP Paribas said that liquidity had evaporated and that they would not allow people who had invested money in those funds to withdraw their money until liquidity returned. After having their accounts frozen for two and a half weeks, customers could begin withdrawing again. Although the BNP funds reopened, they did so at a loss.²

Suspending redemption is an unusual move for a couple reasons. First, whenever you do allow people to withdraw money again, they are likely to do so in large numbers to avoid losing access again. Second, you will have a hard time getting new people to invest your funds because they are worried that you might suspend redemption again. And third, suspending redemption sends the message: "Something is not right here!" in bright neon red letters—hardly a message to instill confidence. BNP Paribas was not the only firm having these problems. Other European banks were starting to take huge write downs on their portfolios holding US-based MBS. The European Central Bank (ECB) lent almost 100 billion (94.8)

Euros to banks in Europe to maintain their target interest rate and meet banks' increasing demand for cash around this time.

Bear Stearns faced a similar problem in the summer of 2007. It launched two hedge funds focused on investing in mortgage-backed securities that then had to close within a matter of months. Bear closed its hedge funds because they started losing money almost immediately. This story will play out again and again as the crisis unfolded throughout 2008. The suspension of withdrawal from these Paribus funds and the closing of Bear Stearns' two new hedge funds sent shock waves around the world. Investors could sense that something was very wrong in certain financial markets. But most did not know what was wrong or how bad it was. The stock market floundered in late 2007 after the S&P 500 had closed at an historic high of 1552.50 on July 13. It lost 13% of its value by January 1, 2008 (1350.66). Housing starts also began falling rapidly from a high of 2.2 million in January 2006 to 1.08 million in January 2008 to 614,000 in January 2010. Credit markets became increasingly jittery, meaning that institutional investors became less and less willing to continue lending money short-term to major financial institutions. By the fall of 2007, the Federal Reserve decided to get involved.

They began lowering their target short-term interest rate (FFR) from 5.25% in September 2007 to 1.5% in October 2008. The Fed's rapid lowering of its target FFR along with a string of mortgage origination companies declaring bankruptcy and declining stock prices meant that the initial turmoil that only affected a few credit markets quickly became known to people across society.

The problems in financial markets ultimately stemmed from problems with mortgage-related derivatives. And the problems with mortgage derivatives arose from one primary issue: assessing the value of the underlying mortgages. No one was willing to buy any of the Paribus funds' MBS holdings because no one was sure what the MBS were worth. Housing starts falling by over 50% in just two years signaled to investors that effective demand for housing was declining rapidly, which meant house prices would continue declining as well. Falling house prices was cause for concern for two reasons.

First, the underlying assets of MBS are houses. If the prices of houses fall, the value of the collateral or assets backing MBS will fall, making the MBS riskier. The closely related and even more important reason why falling housing prices matter is because the rate of mortgage defaults rises when the value of a house decreases. This can happen for a number of reasons but the biggest one is that people end up owing more money to the bank than their house is worth (they are "underwater"), and so they just

walk away from their mortgage and the house—leaving the bank and the investors owning MBS holding the bag.

The connection between housing starts, housing demand, housing prices, homeowner defaults, and MBS values seems fairly straightforward in theory. And investors and public officials were talking about these things in the fall of 2007. But in fact, the connection between falling house prices and rising mortgage defaults was heavily dependent on the quality of the mortgages. The subprime loan default rate jumped from five or six percent before the crisis to a peak of about twenty percent—a fourfold increase. In contrast, Alt-A loans had default rates of about .6% before the crisis that jumped to about a ten percent default rate during the crisis - a sixteen-fold increase!³ Defaults on traditional prime mortgages did rise during the crisis but by only a small amount compared to subprime and Alt-A mortgages. Prime loans were far less likely to default because borrowers generally had higher incomes, less debt, better credit histories, and more equity in their house.

Therefore, assessing how declines in housing prices would affect MBS and other mortgage derivatives required good knowledge of the proportion of low-quality to high-quality loans in the overall market and in the particular pool of mortgages behind the MBS. Unfortunately, public officials like Fed Chairman Bernanke and Secretary Paulson, as well as ordinary investors, were blindsided by the crisis because there were actually far more low-quality mortgages in the market than anyone realized because Fannie Mae and Freddie Mac, two enormous government sponsored enterprises (GSEs), hid how many of the loans they purchased were of low-quality.

Even with an accurate picture of subprime vs. prime mortgages, most people did not understand the extent to which MBS could affect the rest of the financial sector and the general economy. The general mood at the end of 2007 was that the MBS and liquidity problems were contained. Although this speech pre-dates the problems with Bear's hedge funds and BNP Paribas, Bernanke expressed confidence felt by many public officials and investors in May of 2007 that:

Moreover, we are likely to see further increases in delinquencies and foreclosures this year and next as many adjustable-rate loans face interest-rate resets. All that said, given the fundamental factors in place that should support the demand for housing, we believe the effect of the troubles in the subprime sector on the broader housing market will likely be limited, and we do not expect significant spillovers from the subprime market to the rest of the economy or to the financial system. The vast majority of mortgages, including even subprime mortgages, continue to perform well. Past gains in house prices have left most homeowners with significant

amounts of home equity, and growth in jobs and incomes should help keep the financial obligations of most households manageable.⁴

Spring 2008

Despite the belief among government bureaucrats that the economy was not heading for serious trouble, most investors still felt uneasy. The unemployment rate had begun to rise, and housing prices and housing starts continued to fall. The stock market also continued to jolt along on a slightly downward trend. Still, maybe things were getting better. Markets just needed a little more time to adjust. Elected officials, however, decided they ought to act. Congress, which realized by the end of 2007 that something was wrong, had finally been able to “not let a good crisis go to waste.” In February of 2008, they passed a tax rebate bill, the Economic Stimulus Act of 2008, to “fix” whatever was ailing the economy.

Well, in March another major event occurred that rattled investors. The smallest of the five major investment banks, Bear Stearns, was forced into a shotgun sale to JPMorgan Chase after its stock price collapsed and its investors withdrew their money. The sale of Bear Stearns to JP Morgan, which was worked out over a weekend by the Treasury and the Federal Reserve, surprised people who were not aware of the run on Bear that had been going on for several weeks. The Federal Reserve provided a \$29 billion loan to purchase Bear’s worst assets (toxic MBS), secured by those assets, to encourage JPMorgan to make the deal. This meant the Fed agreed to cover most of the downside should those toxic MBS not recover in value.

The episode with Bear was all the more striking because of the extreme change in the fortune of shareholders over a short period of time. The stock had traded for \$159 a share a year earlier. At the beginning of 2008, amidst credit market turmoil, its stock price still reached \$93 a share in February. It had even traded for \$68 a share a week earlier. At first JPMorgan Chase bought Bear for \$2 a share (less than 7% of its market value two days earlier) but they revised their offer to \$10 a share to pacify angry shareholders.

The involvement of both the Fed and the Treasury in brokering the Bear deal was also significant. People began to wonder if things were a lot worse than they appeared. They also thought that the government was implicitly agreeing to backstop large financial firms. For their part, public officials reasoned that letting Bear Stearns fail abruptly would disrupt the market. Some creditors won’t be paid for a while which will hurt their liquidity and increase their chance of failure. Furthermore, Bear’s

bankruptcy means that all of their assets, including large holdings of MBS, will be sold, dragging down asset prices across the board which will create paper losses for all financial firms. Finally, letting a well-established company of Bear's size fail unexpectedly will create panic among investors and cause more problems in financial markets.

At the time, it seemed like the government's plan worked. There was no panic or steep decline in stock prices. The rest of the spring continued as before without much fanfare. The Fed stopped cutting the Federal Funds Rate in April 2008 because they thought most of the problems were behind them. They were afraid that lowering rates more would stoke inflation. By the end of 2008, they had cut the FFR to an unprecedented 1.5%.

Summer 2008

Following the bailout of Bear Stearns, the market entered a period of uneasy calm over the summer. Investors were still nervous, but Fed and Treasury officials kept reassuring them that everything was fine and under control. Congress had passed an economic stimulus program that should have given the economy a shot in the arm. Yet there had been little noticeable improvement in market indicators like stock prices, unemployment, output, housing starts and prices, and credit markets. In fact, the economy continued to deteriorate. The DJIA had declined from just over 13,000 at the beginning of May to around 11,000 in the middle of July. Meanwhile, unemployment had increased about half a percent over that period.

No one felt like all their economic troubles were behind them, and the housing industry continued collapsing. If the main problem facing the economy was declining housing starts and housing prices, and a corresponding fall in the value of MBS, organizations specializing in buying mortgages and selling and insuring MBS were in serious trouble. This was what drove Bear Stearns under, it would be the undoing of two other large investment banks, and it would plague most large commercial banks throughout the crisis.

Over the summer, one mortgage origination company after another went bankrupt or was acquired. The largest mortgage originator, Countrywide Financial, was acquired by Bank of America for a small fraction of its price a few years earlier. Countrywide Financial was responsible for over 10% of all the new mortgages issued in the U. S. After an uneasy summer, the financial crisis kicked into a higher gear—starting with the government takeover of Fannie Mae and Freddie Mac on September 6, 2008.

Paulson gave a detailed account of why the Treasury Department nationalized the GSEs as well as how they did so.⁵ Their main goal, as with Bear Stearns, was to prevent a panic in the market. Fannie and Freddie were enormous companies that bought mortgages from banks and then packaged them into mortgage-backed securities. They made money by selling and insuring MBS. If they went bankrupt, mortgage origination would grind to a halt—meaning home sales would effectively cease.

As housing prices fell and mortgage defaults rose, Fannie and Freddie had an increasingly difficult time selling their MBS. Not selling MBS caused their revenue to decline, making it even more difficult to service their combined debt of over a trillion dollars. Furthermore, the GSEs needed to keep rolling over their debt, which became costlier as lenders demanded more collateral and higher interest rates. Finally, the value of their assets, mostly mortgages and MBS, kept falling with the housing market. On September 6th, the Treasury Department intervened.

Paulson gave three main reasons for bailing out Fannie and Freddie. First, as conditions worsened in housing and financial markets, private investment banks dramatically reduced their purchases of mortgages to bundle into MBS, leaving Fannie and Freddie as the only major mortgage buyers in the market. If they folded, a huge and increasingly the only source of funding for new mortgages, which directly enabled housing demand, would have disappeared. Even less effective demand for houses would exacerbate the problems of falling housing prices, increasing mortgage defaults, and falling MBS prices.

Second, Fannie and Freddie's enormous debt was largely held by investors and governments outside the U. S. They had bought Fannie's and Freddie's debt believing these companies were backed by the U. S. government. These foreign investors associated GSE debt with the full faith and credit of the United States. Paulson feared that if Fannie or Freddie went bankrupt and defaulted on their loans, foreign investors would question the creditworthiness of the United States government and begin selling their holdings of Treasury bonds. Foreigners held over four trillion of U. S. government debt in July of 2008. If they panicked and began selling that debt, financial markets would be thrown into even greater chaos and turmoil.

Third, Paulson also worried about what domestic investors would think if Fannie and Freddie failed. Surely, they would see the writing on the wall like their foreign counterparts. They would panic and dump U. S. treasuries too. But they would also panic about the state of the economy. Remember, most investors were already walking on eggshells, hoping that the economy was improving but not really believing it. The failure of the

two remaining giant mortgage packagers would confirm all their worst fears. So Paulson decided preemptively to take over (i. e. nationalize) Fannie and Freddie.

Fall & Winter 2008

September marked the beginning of the worst part of the financial crisis. There was a flurry of failures, bailouts, policy changes, announcements, and interventions from September through December. The conventional wisdom points to the bankruptcy of Lehman Brothers, on September 15th, as the catalyst for the financial crisis. Instead of a bailout rescue package as with Bear, Lehman went bankrupt. Lehman's bankruptcy revealed that the problems from early 2008 and late 2007 had not only not gone away, they were continuing to get worse—further reinforcing people's pessimism and investors' panic. Lehman was also a large investment bank with thousands of contracts and obligations with other companies throughout the financial industry. Their bankruptcy immediately called all these contracts into question, adding even more uncertainty. Their bankruptcy also meant a temporary suspension of all payments and transactions—meaning many firms and investors were left without cash payments they had been expecting—not exactly good for confidence or business.

Lehman's failure also damaged already weak credit markets. The financial system runs on large flows of funds in the form of short-term debt contracts such as repurchase agreements (repo), commercial paper, swaps, etc. As various firms' financial positions weakened, it became much riskier to lend them money, even overnight and even in exchange for collateral; especially if that collateral was "toxic" MBS that nobody knew how to value, but everyone knew was declining in value. The unexpected failure of Lehman, which was a big player in this market, caused lenders to become even more cautious, thereby slowing the flow of funds in short-term debt markets to a trickle.

People believed Lehman's failure sparked the financial crisis because of the clear cascading effects on other market participants, both directly and indirectly. Lehman's failure directly caused the Reserve Primary Fund, the largest money market mutual fund in the U. S., to temporarily "break the buck"—meaning the value of its assets fell to less than \$1 a share—something money market mutual funds more or less promised would never happen. They broke the buck because they held a large amount of Lehman's debt which, after they declared bankruptcy, had to be written off as a complete loss. Eventually, the senior debt was repaid in

full, as were Lehman's customers. Unsecured lenders to Lehman have also received almost forty cents on the dollar, which is far more than anyone had expected would be recovered at the outset. But from an accounting standpoint, in September 2008, the Reserve Primary Fund had to write off all that Lehman debt, causing them to take huge paper losses and break the buck.

Lehman's failure increased investor panic, causing them to run on various financial institutions. Putting Lehman's MBS holdings up for sale contributed to their declining value in the market. This exacerbated AIG's problems of insuring the value of MBS through credit default swaps (CDS). Lehman Brothers' failure persuaded Merrill Lynch's CEO and board to sell the company to Bank of America. Wachovia and Washington Mutual, two of the ten largest banks in the U. S., also failed and had to be acquired in subsequent weeks!

An indirect consequence of Lehman's failure was that it created a huge amount of uncertainty in markets about what the federal government would or would not do. Why did they bailout Bear but not Lehman? Would they not bailout other companies if they failed? These were really important questions as everyone on Wall Street was looking around wondering, "Who is next?" and "How will their failure or bailout affect me?" Jamie Dimon is said to have told his team to start working on contingency plans for if Merrill Lynch, Morgan Stanley, and Goldman Sachs all failed.

Following Lehman's failure, the floodgates opened (Table 3.1).

Table 3.1: Major Crisis Events After Lehman Brothers Fails

Company	Date	Description
Merrill Lynch	September 14th	Announces acquisition talks with Bank of America
Lehman Brothers	September 15	Files for bankruptcy
American Insurance Group	September 16th November 8th	Receives initial \$85 billion loan from the Fed in exchange for 79.9% of its equity; bailout terms revised in November of 2008

Reserve Primary Fund	September 16th	Breaks the buck - approximately \$40 billion withdrawn from the fund in less than 24 hours
Temporary Guarantee Program for Money Market Mutual Funds	September 19th	The Treasury creates a new program insuring deposits at money market mutual funds
Troubled Asset Relief Program	September 20th	Original TARP proposal from Paulson to Congress
Goldman Sachs & Morgan Stanley	September 21st	Become bank holding companies with access to direct Fed lending
Asset-Backed Commercial Paper Money Market Fund Liquidity Facility (AMLF)	September 22nd	Program created by the Federal Reserve to provide liquidity to money market mutual funds and the short-term lending markets
Washington Mutual	September 25th	Placed into receivership by FDIC
Wachovia	September 26th	Pressured by regulators to find a buyer after Washington Mutual's receivership triggers panic among Wachovia's customers and depositors
Troubled Asset Relief Program	September 29th	Rejected by the House of Representatives
DJIA 1-day declines over 5%	September 29th	Only day the DJIA declines over 5% <u>before</u> TARP
Troubled Asset Relief Program	October 1st	Passed by the House of Representatives
Troubled Asset Relief Program	October 3rd	Signed into law by President Bush

Troubled Asset Relief Program	October 14	Focus and implementation changed significantly
Money Market Investor Funding Facility	October 21	New money market funding facility announced
Commercial Paper Funding Facility	October 27th	Another Fed program to provide liquidity
Quantitative Easing I	November	Fed begins buying hundreds of billions of dollars of Mortgage-Backed Securities
DJIA 1-day declines over 5%	October 7, 9, 15, 22 November 5, 20 December 1	Seven of eight 1-day declines over 5% occur after TARP was passed to <i>rescue</i> the financial system....
Citibank & Bank of America	October 28 January 2009	Both banks received \$25 billion TARP dollars in October and an additional \$20 billion in January
Quantitative Easing II	November 2010	Fed begins buying \$600 billion more U. S. Treasury securities
Quantitative Easing III	September 2012	Fed begins buying \$40 billion of Agency debt and MBS per month

2009

By January 2009, the worst part of the crisis was behind but most investors and individuals were far from happy. They had lost approximately \$12,500,000,000,000 in wealth through lower stock and housing prices. More than 4.5 million additional people were unemployed relative to the summer of 2007. And even though the financial panic had ended, the banking system was still reeling—which is remarkable given that it had received hundreds of billions of dollars in government aid.

The stock market did not reach its lowest point until March 9th, 2008. By the time the stock market bottomed out, the damage from the crisis had mostly been done. Unemployment would continue to rise through the rest of 2009, but other parts of the economy had begun recovering by the summer of 2009. But to the new Obama administration and Congress, the economy didn't seem to be recovering in the first half of 2009. In fact, they worried that the economy would decline dangerously through the rest of 2009 into 2010 if they did not intervene. This provided cover for Congress to pass several stimulus bills including the Car Allowance Rebate System (CARS), also known as "Cash for Clunkers," and the American Recovery and Reinvestment Act (ARRA). Both bills focused on getting more money spent in the economy to increase employment and income.

Although Cash for Clunkers was tiny compared to the ARRA, it still represented \$3 billion dollars of spending and received significant criticism for being an ineffective stimulus and a waste of taxpayer money. The ARRA was a much larger and more significant piece of legislation—ultimately adding over \$800 billion to government spending over the decade following 2009. Economists still debate the efficacy of ARRA. In terms of promised results relative to an alternative world where it wasn't passed, ARRA is clearly a failure. Unemployment rose higher than any government official had predicted. The debate, though, is over whether unemployment would have in fact been much worse than expected without the stimulus.

Most people studying the crisis would not dispute the importance of the events I have highlighted. The reasons these events occurred, however, and what impact they had on the economy are far from settled. The next chapter explains the mechanics of the financial crisis, and how the landmark events just described contributed to it.

Notes

¹ Kanter and Werdigier (2007), "Big French Bank Suspends Funds."

² Reuters (2007), "BNP Paribas is Reopening 3 Funds."

³ Bahnsen (2018), *Crisis of Responsibility* pgs. 60-61.

⁴ Bernanke (2007), "The Subprime Mortgage Market."

⁵ Paulson (2010), *On the Brink*.

CHAPTER FOUR

FINANCIAL MECHANICS OF THE CRISIS

Now you should have a good sense of the major events of the crisis and how the crisis affected ordinary Americans. However, before you can move into assessing the causes of the crisis, and who is to blame, you need a clear picture of the mechanics of the crisis and how it unfolded.

The Basic Problem

The fundamental catalyst of the financial crisis was huge numbers of mortgages that were never repaid. These mortgage defaults created the initial losses. These losses were amplified through the process of securitization where mortgages were turned into mortgage-backed securities (MBS) and collateralized debt obligations (CDOs), and then held by financial institutions around the world. When house prices declined significantly in 2007 and 2008, mortgage default rates (especially on subprime mortgages) rose dramatically and unexpectedly, setting off panic around the world as institutions holding billions of dollars of MBS no longer knew what they were worth. Banks' losses on their MBS were magnified by their leverage.

The crisis deepened and spread because MBS were widely used as collateral in short-term lending between large institutional investors such as insurance funds, hedge funds, sovereign wealth funds, and large borrowers like commercial and investment banks or other large corporations. This short-term lending market is also known as the commercial paper market. An investment bank like Bear Stearns, for example, could borrow hundreds of billions of dollars for a few months, weeks, or even days. They could do so because they had hundreds of billions of dollars of MBS and other assets to use as collateral.

Lenders were willing to issue these large short-term loans because they could always claim or sell the collateral assets provided by the borrower. But when the market value of that collateral began to fall, lenders demanded more of it. In the industry, this is known as an increase in the "haircut," the difference between the face value of assets and what people

are willing to offer for them. These institutional lenders also began demanding higher interest rates on their loans. Eventually, many of these lenders stopped lending altogether to Bear Stearns and other risky financial institutions, which created an existential crisis for the firms that were unable to roll over billions of dollars of short-term debt. Financial contagion spread as distressed firms like Bear Stearns had to sell their MBS assets en masse to repay their creditors, driving down the price of MBS in the process, which then forced other financial firms to take huge paper losses because they had to write down the value of any MBS they held to the current market price, even if they weren't selling them due to "mark to market" rules.

Ultimately, the 2008 financial crisis was made up of the losses and devaluations around mortgages, mortgage-related securities, and asset fire sales. The fact that most of these mortgage-related securities were difficult to value or assess contributed to the problem. The opacity of these mortgage assets was particularly troubling as market participants were panicking and short on time. On top of this, most financial firms were highly leveraged and dependent on short-term debt to fund their operations. As the market deteriorated, major institutional investors began to worry about the value of their collateral as well as about the solvency of their counter-parties who were borrowing billions of dollars.

Institutional investors became reluctant to continue lending—even on a short-term basis with collateral. The significant decline in lending in the money market and commercial paper market put large investment banks and other large borrowers in a bind, forcing them to sell hundreds of billions of dollars of assets simultaneously, further reducing the price of those assets. In the process, billions of dollars of paper losses emerged on the balance sheets of commercial banks and other financial institutions, disrupting the normal functioning of the financial system.

There are many different financial instruments that were involved in creating the 2008 financial crisis, from individual mortgages to complex financial derivatives such as mortgage-backed securities (MBS), collateralized debt obligations (CDO), and credit default swaps (CDS). At the heart of the crisis were millions of low-quality mortgages backing these derivatives. The default of unexpectedly large numbers of mortgages triggered the cascading collapse of financial assets and firms. The first part of this chapter explains basic mortgage finance and how declining underwriting standards, driven almost entirely by federal regulations, led to rot within the entire mortgage industry. The second section explains the process of securitization and how exposure to these mortgages was both amplified and spread across thousands of firms around the world. The

third section explains how the decline in mortgage and mortgage-related securities created disaster within financial markets, especially in what is known as the shadow banking system. The fourth section addresses the role of credit rating agencies and other financial dynamics of the crisis.

Mortgage Finance

Since most readers will be familiar with mortgage finance, this section moves through the terms and structure of mortgages fairly quickly. If you are less familiar with mortgage finance, keep the glossary at the end of the book handy. The nitty-gritty structure and history of mortgage finance is critical to understanding how the housing bubble formed and why the decline in housing prices starting in late 2006 triggered panic and collapse around the world.

From the 1950s through the 1990s, home mortgages were a “boring” or vanilla market. That is to say, there were not many types of mortgages. Most mortgages issued ended up being repaid. This was so because underwriting standards were clear and strenuous – lenders would only issue mortgages to individuals with a high likelihood of repaying the loan. Here are several characteristics of traditional mortgages:

- A 20% down payment
- Borrowers should not pay more than 33% of their pretax income on debt payments
- Relatively high credit (FICO) scores
- Verification of borrower’s income and assets
- Predictable and stable monthly payments

Each of these criteria increased the quality and safety of the mortgages issued. A 20% down payment showed that the borrower had accumulated a significant amount of cash, and could likely do so in the future. But even more importantly, it meant that they started with 20% equity in their house. Equity is the difference between the market value of the house and what they owe on the house (their mortgage). By putting 20% down, the buyer only had to borrow 80% of the value of the house. Having equity is important because it represents “skin in the game” or ownership. Borrowers are unlikely to default if they have equity in their house because even though their debt would be dismissed in bankruptcy, they would also lose the house, which was worth even more.

Consider the case of three borrowers, one putting down 20%, one putting down 10%, and one putting down 3%.

Table 4.1: 20% Down Payment

	House Value	Equity	Return on equity	Loss from mortgage default
Initial	\$100,000	\$20,000	0%	\$20,000
+5%	\$105,000	\$25,000	25%	\$25,000
+10%	\$110,000	\$30,000	50%	\$30,000
-5%	\$95,000	\$15,000	-25%	\$15,000
-10%	\$90,000	\$10,000	-50%	\$10,000

Table 4.2: 10% Down Payment

	House Value	Equity	Return on equity	Loss from mortgage default
Initial	\$100,000	\$10,000	0%	\$10,000
+5%	\$105,000	\$15,000	50%	\$15,000
+10%	\$110,000	\$20,000	100%	\$20,000
-5%	\$95,000	\$5,000	-50%	\$5,000
-10%	\$90,000	\$0	-100%	\$0

Table 4.3: 3% Down Payment

	House Value	Equity	Return on equity	Loss from mortgage default
Initial	\$100,000	\$3,000	0%	\$3,000
+5%	\$105,000	\$8,000	167%	\$8,000
+10%	\$110,000	\$13,000	333%	\$13,000
-5%	\$95,000	-\$2,000	-67%	-\$2,000 (Gain)
-10%	\$90,000	-\$7,000	-233%	-\$7,000 (Gain)

There are several important things to notice about these tables. First, in all the cases, any change in the value of the house is amplified in the change in the borrower's equity. Equity changes at five times the rate the house value change for borrowers who put 20% down and at thirty-three times the rate the house value changes for borrowers who put 3% down. When housing prices rise, the borrower's equity increases rapidly.

But the process works in reverse too—their equity declines rapidly when housing prices fall. This entire process is the result of leverage—the fact that they have only used a small part of their own money relative to borrowed money. The less money borrowers put in, the higher their

leverage and the greater the amplification of any changes in the value of the house. This bears important resemblance to how investment banks and other financial firms operate.

Second, notice that a borrower's loss from defaulting on their mortgage is identical with their equity. The more equity they have, the more they stand to lose from not paying back their mortgage. On the other hand, if their equity is negative, they stand to gain from defaulting on their mortgage. This negative equity, which comes from owing more on your mortgage than the house is worth, is an example of being underwater.

Third, those making the smallest down payments are the most leveraged, and therefore the most sensitive to a decline in the value of their house. It does not take a large change in the price of the house to wipe out their equity—making it more attractive for them to simply walk away and default on their mortgage. So, the size of down payments directly impacts how much changing housing prices will affect people's likelihood of defaulting on their mortgages.

Another important element of mortgage finance is making sure that borrowers have means of repaying the mortgage over time. Lenders do this by looking at what a borrower's debt to income ratio will look like with a mortgage. The industry rule of thumb was that borrowers should not have monthly mortgage payments plus payments on other debt greater than 33% of their monthly pre-tax income. Lending to borrowers spending more than 33% of their income on debt services was considered so risky that not many loans were issued to such borrowers before the recent housing boom. Alarming, the Wall Street Journal reported in April 2018 that "Roughly one in five conventional mortgage loans made this winter went to borrowers spending more than 45% of their monthly incomes on their mortgage payment and other debts, the highest proportion since the housing crisis."¹

Besides making sure that borrowers did not have too much of their monthly income going toward debt payments, lenders would also verify that the borrowers did, in fact, have the monthly income they claimed to have. Lending someone hundreds of thousands of dollars because they claim to have a high income is extremely risky unless I can verify that they really have that high income and are not lying to me!

To backstop these criteria for issuing a mortgage, lenders would also look at borrowers' credit scores, called FICO scores, to determine their general risk of default. Credit scores represent an evaluation of the borrower's entire credit history. How many credit cards or other debts do they have? How frequently have they been late on payments? Are they trying to borrow money from multiple sources at the same time? Have

they gone through bankruptcy or defaulted on previous debt? The answers to all these questions affect how likely the borrower is to repay or default on future debt, such as a mortgage.

A final important element of mortgage finance is the structure of repayment. How long do you have to repay the loan and at what interest rate? In traditional mortgage finance, borrowers took out fixed-rate mortgages (FRM) of varying lengths, usually 15 or 30 years. That meant they borrowed at a certain fixed interest rate that remained the same throughout the life of the loan. Their loan repayments consisted of the same monthly payment split between principal and interest. Over time, the portion going towards paying interest on the loan would decrease because the size of the loan decreases as you repay principle; which means the amount going towards repaying principal increases. But there would be no changes in the monthly payment.

To summarize, mortgages have traditionally been safe and steady financial instruments. Banks normally issued mortgages to borrowers with a decent credit history, demonstrated income, and a large down payment. During the housing bubble, all of that changed:

- The size of down payments declined from 20% to 10% to 3% to, in some cases, 0%.
- Borrowers could have more than 33% of their pretax income going towards debt payments—interest-only and adjustable rate mortgages were also used to reduce borrowers' initial monthly payments.
- Significantly more mortgages were being given to borrowers with low FICO scores.
- Verification of income and assets was largely dropped in practice by many large mortgage origination companies.
- Many borrowers' monthly payments were no longer fixed for the duration of the loan.

On basically any dimension you can think of, mortgage quality during the housing bubble deteriorated significantly—meaning that too many mortgages that were too large were issued to too many borrowers who would be unable or unwilling to repay those mortgages if housing prices declined or even plateaued. The mortgage finance machine had been kicked into high gear through a decade of regulatory and Congressional pressure, as well as through rent-seeking activity through community activist organizations, such that the quality of mortgages declined even as the number of mortgages issued increased dramatically. As you would expect, mortgage fraud also shot through the roof across the country.

Although some of this involved predatory lending (i. e. lying to borrowers about the terms of the loan), most of the fraud involved collusion between borrowers and mortgage officers to exaggerate, fabricate, or falsify reported income and assets.

One of the most striking and obvious changes we can see in the data is the huge spike in adjustable-rate mortgages (ARMs) issued relative to fixed-rate mortgages. ARMs had several attractive qualities to borrowers and lenders. Borrowers received discounted “teaser” interest rates for the first two or three years of their mortgage. In an era of extremely low interest rates to begin with, their initial interest rate was extremely low. This allowed a combination of two things. It made it easier for borrowers to meet the 33% debt to income rule because their monthly payments at the teaser interest rate were smaller than if they were paying the going market rate for FRMs. The low initial interest rates also meant that they could borrow larger amounts of money, at reasonable monthly payments, relative to a FRM. Either way, the teaser rates made it easier for more people to qualify for mortgages and it made it easier for them to qualify for larger mortgages.

Lenders liked ARMs too, mainly because it allowed them to issue more mortgages. You might think that the lower teaser rate they received initially might make ARMs less attractive than FRM, especially given the fact that lenders expected borrowers to refinance with another ARM right before the teaser rate on their first ARM expired. If lenders were holding these mortgages themselves, that may have been true. But most lenders collected fees when they issued these mortgages, and again when they turned around and sold them to investment banks or to the Government Sponsored Enterprises (GSEs), Fannie Mae and Freddie Mac.

ARMs, by their very nature, meant that borrowers would not be making the same monthly payments throughout the life of the loan. Instead, their monthly payments would “balloon” when the teaser rate ended and the new market rate (often plus one or two percent) kicked in. That could mean increases of hundreds of dollars every month due to the higher interest rate. If the borrower had already stretched their income and resources as far as they could go to qualify for that larger mortgage, this increase in payments would likely cause them to default. The reason borrowers weren’t defaulting on ARMs in the early 2000s when their teaser rates expired was because they would either sell the house or refinance in order to pay back the ARM at the higher rate and replace it with a new ARM at a lower rate.

But selling or refinancing only works if you have a reasonable amount of equity in your house. If house prices have fallen, instead of risen, and

you are underwater, you can't refinance or repay your mortgage by selling the house. Tens of thousands of borrowers were caught with ballooning payments on their ARMs in late 2006 through late 2008. To make matters worse, market interest rates rose dramatically from 2004 to 2006. Although this had little impact on the 30-year mortgage rate, it raised the reset rates of ARMs, making the ballooning payments even larger than borrowers had anticipated.

Along with issuing more ARMs, lenders also began issuing mortgages to people with lower credit scores. Many stopped verifying income and assets. And they began issuing mortgages to borrowers who put little or no money down. There are whole sets of loans described as No-Doc loans, Liar loans, and NINJA (no income, no job, no assets) loans. Although such practices might seem shocking, for of course they are shocking, these practices became commonplace throughout the U. S. from the early 2000s to 2006.

How could such bad practices continue in operation for half a decade or more? Simple, it worked fine as long as house prices rose. If housing prices are rising rapidly, it almost doesn't matter what kind of mortgage you give to people because they can always refinance or sell the house to get out of trouble. Or even in that rare case where the bank forecloses and takes the house – they can simply turn around and sell it to recoup their losses. Even as love covers a multitude of sins, rising housing prices cover a multitude of shockingly bad underwriting standards.

Peter Wallison has written extensively on the deteriorating quality of mortgages in the late 1990s and early 2000s due to increasing regulatory pressure on Fannie and Freddie to reach “underserved” demographics.² At the time, news outlets talked about the “subprime mortgage crisis.” Subprime mortgages mean mortgages issued to individuals with FICO credit scores below 660. These loans were far riskier, and defaulted far more frequently, than prime loans. At one point defaults on subprime mortgages reached 20%!

However, Wallison and others have argued that while high subprime defaults certainly contributed to the crisis, they represented a relatively small share of the overall mortgage market. Furthermore, everyone knew they were at risk of higher default. The main mortgage disaster occurred in a mortgage category between traditional prime mortgages and subprime mortgages. Some call this category “Alt-A” mortgages – meaning alternative to agency (Fannie & Freddie) standards. Ironically, Fannie and Freddie were eventually able to hold large numbers of these mortgages. Wallison sometimes uses a different designation, non-traditional mortgages,

to capture another subset that fit the agencies' looser standards, but not the traditional prime mortgage standards.

As you would expect, defaults and foreclosures on mortgages with adjustable rates, low down payments, and no income verification spiked in 2007 and 2008 after housing prices began falling and an increasing number of balloon payments on ARMs kicked in. Few people want to buy a house while prices are falling, plus the flow of funds to mortgage lenders slowed to a trickle. Both factors caused the demand, and therefore the prices, of houses to decline. All of this was bad news for homeowners, but how did it generate a financial crisis?

Securitization

Those highly-risky, low-quality mortgages were packaged into securities and distributed throughout the financial system. When housing prices fell and foreclosures mounted, these assets fell in value. Some of them fell a lot because of how they were structured. The falling prices created panic and losses among large financial institutions due to their fragile funding model. As some financial institutions failed, panic increased and spread to other parts of the financial system, creating even more problems. Underneath this panic was uncertainty about a few key issues:

- What were those mortgage derivatives really worth? It was hard to tell because the structures of the derivatives were complex *and* no one knew how high mortgage default rates would rise.
- Who held those derivatives and what would happen to them if the derivatives continue to decline in price?
- As large financial institutions failed, how would their failure damage counterparties, even those affected less directly by the implosion of the mortgage derivative market?

A mortgage derivative is a financial instrument whose value is tied to the performance and repayment of mortgages. There were many kinds of mortgage derivatives, but I will explain three of them in detail here: MBS, CDOs, and CDS. None of these structures are unique to mortgages—they can be applied to other assets—but it was mortgages that imploded and created havoc in financial markets.

In theory, mortgage-backed securities are quite simple. In practice, they can be brutally complex. The basic idea of a MBS is that some entity, usually Fannie, Freddie, or an investment bank, would purchase thousands

of mortgages with certain characteristics (size, FICO scores, interest rates, etc.). Then they would put these mortgages into a “pool.” Every month as borrowers made their principle and interest payments, money would flow into these pools. The packaging companies would sell shares or claims to the revenue of this pool to investors. These shares are what we call mortgage-backed securities. Instead of owning someone’s \$200,000 mortgage, an investor could purchase \$200,000 of MBS, which was a share of, say, 1000 people’s \$200,000 mortgages. Part of the idea here was to diversify risk. Holding a single mortgage holds a far greater downside risk than holding a claim to a pool of mortgages. If the borrower on the single mortgage defaults, you’ve lost most or all of your investment. However, even if 10 out of 1000 borrowers default, you’ve only lost 1% of your investment.

There is a further critical element to MBS—they are not all made equal. One of the most important ideas behind the development of MBS and CDOs is the idea of structured finance. When the packaging companies sell shares to the pool of mortgages, they create different “tranches” or levels of security. Some MBS holders will be paid first, others second, and so on. Those who are first in line are the most likely to be paid while those at the end of the line only get paid if there are no defaults in the pool.

The use of tranches led to several important developments. First, it made some MBS, the ones repaid first, even safer. Second, it added complexity in terms of assessing or rating how safe these various tranches would be based upon the underlying pool of mortgages. And third, the idea of tranching allowed a sort of pyramiding with CDOs that I will describe shortly. The long and short of it, though, is that through MBS and structured finance, mortgage packaging companies like Fannie and Freddie, could take somewhat risky (and illiquid) mortgages, and turn them into extremely safe, and therefore also fairly liquid, securities that could be held by investors all over the world.

There are really two key characteristics to understanding the quality of MBS. First, what is the quality of the individual mortgages in the pool behind the MBS? And second, how large are the tranches of which MBS get paid first, second, third, and so on? These are the two primary areas of risk. If the underlying mortgages turn out to be highly risky and of low quality, then there will be less money flowing into the pool and fewer MBS will receive payments. This leads directly to the second issue of how quickly and how many of the tranches of MBS stop receiving payments as mortgage default rates rise.

Collateralized debt obligations have a similar structure to MBS. They are claims to income on a pool of assets. It could be mortgages, but it could also be car loans, credit card loans, or student loans. But most importantly for the financial crisis, CDOs could be built on a pool of MBS. Instead of using mortgages as the underlying asset, many CDOs used claims to pools of mortgages (i.e. MBS) as the underlying asset. In this case, a borrower would make monthly principal and interest payments. That money would flow into a pool of mortgages. The money would then flow from that pool to the various MBS that had claims to the pool. Some of those MBS would be in a new pool mixed with MBS built on separate pools of mortgages, and the money in this pool of MBS would then flow to the owners of CDOs.

And just like with MBS, the CDOs would be tranching as well. Some CDOs would be paid first while others would be paid later. And like MBS, the quality of the CDO rests on the quality of the underlying MBS, which rests on the quality of the underlying mortgages. But here is where the complexity explodes. Assessing the value of a MBS involves understanding the basic quality of a thousand mortgages or so—a difficult, but not impossible, task. But assessing the value of a CDO requires understanding the basic quality of a thousand or so MBS, which are based upon potentially hundreds of pools of a thousand or so mortgages each! The costs of determining the quality of these CDOs with any accuracy were prohibitively high. So very few people looked into the tens of thousands of underlying mortgages to assess the quality of CDOs. Instead, they used shorthand evaluations through the credit ratings on the MBS in the fund – credit ratings which were supposed to represent the underlying quality of the mortgages behind each and every one of these MBS with a high degree of accuracy.

We should consider the profitability of MBS and CDOs. If you are selling an asset, you want the highest price you can get for it. The mortgage packaging companies were no different. They wanted to sell as much of the highest priced MBS that they could – and the highest priced MBS were the safest – those that were paid first. These MBS were rated AAA by the credit rating agencies because they were first in line to be paid from a diversified pool of mortgages. AA was next, A after that, and so on until the lowest tranche that was paid last (the equity tranche). Many times, mortgage packagers wouldn't even sell these because the price was so low.

AAA MBS were gold for mortgage packagers because they fetched the highest price. The folks on Wall Street asked: “how can we generate more AAA assets from the lower rated MBS – the B, BB, and BBB?” The

answer was to buy up lower rated MBS, bundle them together in a pool, and then sell tranching shares (CDOs) to the pool. Those shares that were first in line were again rated AAA because they were first to be paid from a diversified set of assets. Right before the crash, some Wall Street firms were experimenting with creating “CDO²,” shares of pools of CDOs, which were themselves shares of pools of MBS, which were shares of pools of mortgages, for similar reasons.

These mortgage derivatives were funded in a variety of ways. For MBS, the GSEs and investment banks would simply borrow large amounts of money to purchase the mortgages, then repay their loans after they sold the MBS they created. But increasing your borrowing can get you in trouble with regulators, especially if you are a commercial bank. Another method used to finance the creation of mortgage derivatives, especially CDOs, involved off-balance sheet entities.

These entities were either a Special Purpose Vehicle (SPV) or a Structured Investment Vehicle (SIV). Banks would create SPVs or SIVs to fund the creation of new MBS and CDOs. A SIV, for example, would issue commercial paper to raise money and then purchase either mortgages or MBS depending on what it was going to create. Its commercial paper was backed by the mortgage-related assets it purchased and bundled. This was known as asset-backed commercial paper (ABCP). In the early 2000s, the amount of ABCP issued exploded from about \$560 billion in January of 2001 to over \$1.2 trillion in August of 2007.

Although these off-balance sheet entities were very effective at raising money and made it easier for banks to create MBS and CDOs without increasing the size of their balance sheets, they had an unanticipated downside. These entities were sponsored by banks, which meant the bank agreed to support the entity if it could not raise enough funds in the money market. During the crisis, institutional investors became increasingly wary of the money market and of mortgage derivatives – which meant raising money specifically to create mortgage derivatives became much more difficult. Banks, most notably Citibank, often had to take their SPVs or SIVs back onto their balance sheets because they couldn’t raise enough money. You can imagine regulators’ and investors’ dismay when they realized during the crisis that Citi had close to \$1.1 trillion of off-balance sheet entities to reckon with.

Mortgage Securities and the Shadow Banking System

Now that we’ve covered the mechanics of mortgage finance, with particular focus on the deterioration in mortgage quality beginning in the

late 1990s, as well as the process of securitizing mortgages in mortgage-backed securities and collateralized debt obligations, it is time to turn to the shadow banking system itself which is where the financial crisis began before it spilled over into the traditional banking system.

Shadow banking has been used to describe a variety of practices, institutions, and markets. The most helpful way to think about it is as the equivalent of the traditional commercial banking system, but with different players, slightly different rules, and slightly different mechanics. Traditional banking involves commercial banks receiving deposits from millions of savers. These deposits are in effect loans to the bank—loans that can be called at any time. Depositors give the bank their money, but they expect to be able to withdraw their money whenever they want it. Commercial banks then use these deposits to make loans to millions of individuals and businesses throughout the economy. They are financial intermediaries between people who want to save and people who want to borrow.

The shadow banking system is similar in the sense that it connects savers (or lenders) with borrowers. But its mechanics are different because it rarely uses intermediaries. It is also different in terms of scale. The borrowers and lenders in the shadow banking system are not playing with thousands of dollars. They tend to play with hundreds of millions or billions of dollars. A wealthy individual may hold a million dollars in a savings account at Wells Fargo, but the California Public Employees' Retirement Program (CalPERS) is not going to open a billion dollar savings account at Wells Fargo. The rate of return is lower than they can get elsewhere and there is too much risk should something happen to the solvency of Wells Fargo. Instead, CalPERS operates in the shadow banking system.

The shadow banking system lives primarily in the money market. This market involves borrowing and lending large amounts of money over short periods of time from a few days up to a year. The money market includes a variety of instruments but the most common are commercial paper and repurchase agreements. Bear Stearns, for example, would borrow billions of dollars from large institutional lenders like CalPERS (or other insurance or pension funds) for a few months, sometimes for only a few weeks. They would do so by issuing debt, called commercial paper, that lenders would buy. Often this short-term lending would be collateralized—that is to say, Bear Stearns would back their debt with various assets that the lenders could seize should Bear fail to repay their debt.

One form of a collateralized loan is a repurchase agreement (repo). In this transaction, Bear Stearns would sell an asset (say for \$100) to a lender and promise to repurchase the asset a week later (say at \$101). The

difference in the agreed upon price represents the interest Bear pays the lender in exchange for the cash. Lenders like these sorts of agreements because they significantly limit their potential downside should something happen to the borrower, or counterparty.

You may be wondering: “What good does it do to borrow a billion dollars for a few weeks, or even a month? How could they expect to repay such a large amount over such a short time frame?” The answer is that they don’t intend to repay it, at least not in the way we usually think of repaying debt. As their billion-dollar loan comes due, Bear Stearns (or any other borrower in the shadow banking system) will borrow another billion dollars to repay the principle of their previous loan. They might borrow this money from a variety of new lenders in the money market. More often, they simply renew their existing loans for a new period of weeks or months. This process is called “rolling-over” debt and is a crucial component behind the failure of Bear Stearns and Lehman Brothers and the credit crunch faced by commercial banks and other large financial institutions.

During times of panic and distress, many lenders are not willing to roll-over debt, or if they do roll it over, they want much higher interest rates and collateral. In either case, it becomes prohibitively expensive, or even impossible, for large borrowers to raise new funds to repay their outstanding loans through additional borrowing. Instead, they are forced to sell huge numbers of assets over a short time frame to raise enough money to repay their creditors. This is called a fire sale and it means that borrowers have to sell their assets at a discount (sometimes a significant discount) because they don’t have time to look for a better price. They are also selling at a time when demand for assets has declined. In late 2007 and during 2008, lenders became increasingly worried about the solvency of their counterparties (the borrowers) and skeptical of the value of the assets used by those borrowers as collateral, especially mortgage derivatives. As a result, they became reluctant to lend in money markets, even for short-term loans backed by collateral.

The fire sales caused by decreasing lending in money markets put downward pressure on asset prices. This has the effect of creating two kinds of losses. First, firms that have to sell their assets at lower prices realize losses—they receive less money for the assets than they paid for them. But more important for understanding how the crisis spread across the financial system to firms that had not borrowed huge amounts of short-term money, were paper losses. Due to SEC rules regarding mark to market accounting, firms had to adjust the value of the assets on their books to the current market price—even if they had no plans to sell those

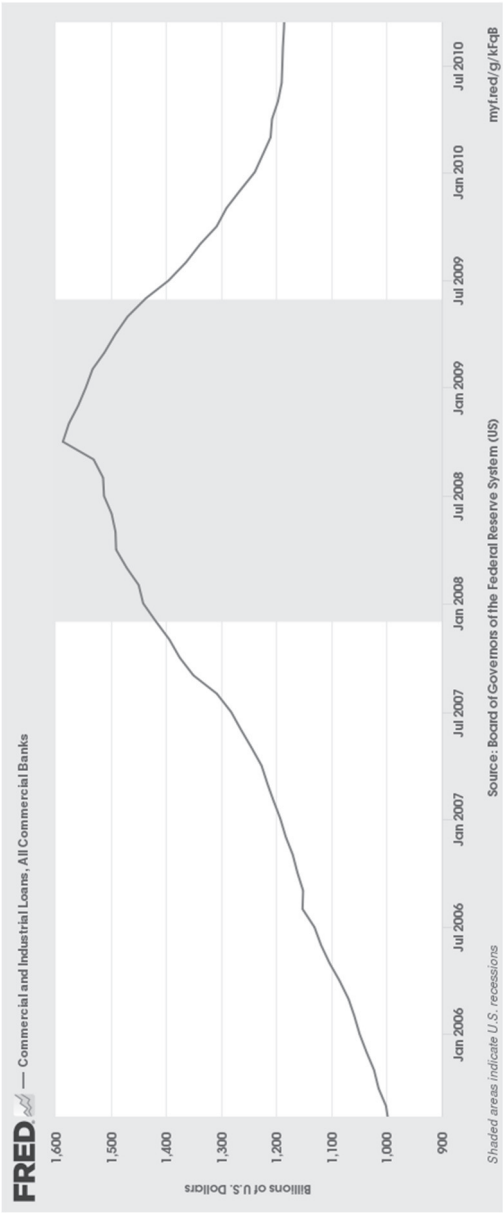
assets. Mark-to-market accounting meant that banks could report billions of dollars in losses without any decline in their cash flows or cash holdings.

While mark to market rules were well-intentioned, and make sense in general, they created enormous problems when certain asset markets behaved erratically—when there was widespread panic that caused asset prices to fall well below their long-run fundamental value. So even though mark-to-market accounting prevents firms from making up values for their assets, as Enron and Worldcom did in the early 2000s, it exacerbates business and credit cycles. During good economic times, firms can see larger profits due to the increasing price of their assets. And during crises, as just described, firms can see large losses simply due to the decreasing price of their assets.

The upshot of this process is that the fire sales triggered by panic created billions of dollars of paper losses on top of the billions of dollars of real losses from rising mortgage defaults, disrupting the normal functioning of the financial system and exacerbating the recession that had begun in late 2007. The economist Irving Fisher, in commenting on the stock market crash of 1929 and the ensuing economic and financial decline during the early part of the Great Depression, talked about an idea known as “debt deflation.” The idea is that panics and crises create self-reinforcing processes. As lenders refuse to roll-over their loans to large borrowers, like Bear Stearns, those borrowers are forced to sell large quantities of their assets (in this case MBS) to raise enough money to repay their creditors. But by flooding the market with MBS, the price of MBS falls, and that declining price affects all financial institutions holding MBS through mark-to-market accounting and paper losses.

As other borrowers take paper losses, lenders become less willing to roll-over their debt, forcing these firms to sell more assets too, putting even more downward pressure on the price of those assets, and creating further paper losses. This process of debt deflation is also related to the ideas of “financial contagion” and of firms being “too big to fail” that were used to justify various Fed lending programs and the Troubled Asset Relief Program, among other interventions. Debt deflation and panic were also self-reinforcing when particular firms failed altogether. During the crisis, trust in various financial institutions weakened as more firms went bankrupt. Ultimately, Paulson lobbied vociferously for the Troubled Asset Relief Program because he thought the loss of trust would eventually extend to every firm in the financial system, causing financial markets and the modern economy as we know it to collapse.

Figure 4.1: Commercial Bank Lending



When trust between borrowers and lenders dissipates, everyone begins to hold money to protect their positions. Liquidity dries up, not only for large financial firms in the shadow banking industry, but across all industries. Large corporations that borrowed in money markets also ran into trouble borrowing or rolling-over their debt. Paulson relates in his memoirs how he knew things were bad when the CEO of General Electric called him and said GE was having troubling raising funds in the money market. But more importantly, many of the larger financial firms traditionally lent money to start-ups, small businesses, and medium businesses. In the face of a cash crunch, they reduced their lending to the rest of the economy significantly (Figure 4.1).

Credit Rating Agencies

An important puzzle behind the financial crisis is why so many investors were willing to buy mortgage derivatives that ended up performing poorly. Why didn't they scrutinize or question the value of these assets sooner? Investors bought huge amounts of mortgage derivatives because they were assured that the risk of default or loss was generally quite low. But who assured them of this? The three major credit rating agencies, Standard & Poor's, Moody, and Fitch did. These agencies are categorized as: Nationally Recognized Statistical Rating Organizations (NRSRO). They are also known as the "big three" rating agencies responsible for nearly all credit ratings given on investment instruments in the U. S. All three of these organizations mis-rated thousands of mortgage derivatives. We should understand why these agencies' inaccurate ratings mattered so much:

Subprime lending was fueled importantly by the ability of mortgage originators to sell their loans to "packagers" (or securitizers), who pooled the loans into securities and sold the securities to institutional investors, or who combined the securities with other debt instruments into yet-more-complicated securities, such as collateralized debt obligations (CDOs) or the "asset-backed commercial paper" (ABCP) that was issued by "structured investment vehicles" (SIVs), that were sold to institutional investors. And crucial to the ability of these packagers to sell the securities was the process of obtaining favorable ratings on the securities.³

The first rating agencies in the U. S. were created about a century ago. But they did not always have the same position they hold today. When the first rating agencies were created, there were no national financial reporting requirements or standards. The rating agencies would research

the health of individual companies and sell their findings to investors. Their long-term success was directly tied to how valuable the research they generated was to investors—which generally meant how well their research described the fundamental soundness of various companies. The ratings offered by these companies were simply one of many ways investors could improve their assessment of companies and securities. Changes in regulation, starting in the 1930s, dramatically increased the importance of these agencies.

After the stock market crash, in the midst of the Great Depression, Congress created many new agencies to regulate various aspects of the economy—especially the banking system. In 1936, new regulations prohibited banks from buying risky “speculative investment securities.”⁴ Instead, they could only purchase investment grade securities. How could banks and regulators distinguish between speculative securities and investment-grade securities? By using credit ratings provided by the credit rating agencies of course! Not only did credit ratings become more influential during this period, they now had legal ramifications.

State regulators of insurance funds, and the federal regulator for pension funds, eventually implemented similar requirements regarding what assets these funds could invest in. Regulators essentially outsourced much of the risk assessment behind investing in securities to the credit rating agencies. It meant that both the regulator and the investor would judge the quality of a balance sheet, and whether firms held enough capital, based upon the judgments offered by a handful of private credit rating agencies.

In 1975, the SEC made these rules even more stringent:

they wanted to revise...minimum capital requirements for broker-dealers (i. e., securities firms), so as to link those capital requirements to the riskiness of the bonds in their portfolios. Following the example of the state insurance regulators, the SEC used the rating agencies' ratings as the guide to a bonds' riskiness. However, the SEC was uneasy with the vagueness of the previous references to “recognized rating manuals”: A bogus rating firm might promise “AAA” ratings for the bonds of a company that paid a suitable fee (and threaten “DDD” ratings for the bonds of the companies that did not); and a broker-dealer might want to use those ratings for the determination of its capital requirements, claiming that these were “recognized.”⁵

To avoid potentially unscrupulous fly-by-night credit rating agencies, the SEC restricted which firms were allowed to offer official credit ratings for the purposes of regulation by creating the “Nationally Recognized Statistical Rating Agencies” category. Initially, there were only three

NRSROs. Between 1982 and 1992, four more firms were added to the list. But by 2000, mergers had brought the total number of NRSROs back to the big three, just in time for the boom in the housing market and in mortgage-related securities.

Lawrence J. White, a professor at NYU who has written extensively about the credit rating agencies, points out that there were no clear standards or processes for how to become a NRSRO or why those firms to which the SEC did give such a label received it. As White puts it:

the SEC was remarkably opaque in its handling of the NRSRO category. It never defined the criteria for becoming a NRSRO; and its decisions to approve or reject an applicant's request to become a NRSRO were never transparent; it never established a formal application or review process, and never explained its decisions.⁶

Creating a formal category of rating agency, one that was difficult for new firms to achieve while there were only a handful of incumbents, created a type of cartel immune to many forces of market competition.

Not only were credit rating agencies part of a *de facto* cartel, their ratings also carried the force of law. The difference between investment grade ratings and junk bond ratings had significant ramifications for how many institutional investors were even allowed to purchase the security. Besides legal ramifications, the credit rating had become the most important tool in assessing how risky a security was. That all-important measure of risk then affected many other regulatory assessments of whether firms had enough capital, were over-leveraged, or were taking too much risk with their customers' money. As we'll see by the end of this chapter, the fact that capital requirements and other financial positions became tied to the underlying securities having a certain credit rating meant that a downgrading of securities' credit ratings would trigger a series of problems requiring firms to put up more collateral, sell securities, raise capital from investors, or make large payments to counterparties.

There are a few more aspects of credit rating agencies to note. First, six more firms were granted NRSRO status by 2009—bringing the total number of NRSROs to ten. But this action was too little too late. These newer firms were much, much smaller than the existing big three. Furthermore, most of the new firms were added after the housing bubble had popped (four of the additional six were added after 2006). During the peak issuance and rating of new mortgage-related securities, Moody's, S&P, and Fitch provided basically all the ratings.

One more problem people have highlighted with credit rating agencies is the conflict of interest that can arise from the "issuer pays" model of

providing ratings. The concern is that since the issuers of securities are paying the credit rating agencies to provide ratings, they can threaten to “shop around” and take their business elsewhere if they do not get the ratings they want. This puts pressure on rating agencies to give higher ratings than they otherwise would. On top of this pressure, there were other potential conflicts of interest in the fact that credit rating agencies would advise firms (for large fees) about how to structure their securities in order to get the best ratings possible.

The conflict of interest story, however, requires greater nuance. It runs into the same problem that the “Wall Street got greedy” explanation of the crisis does. Were people on Wall Street somehow not greedy or less greedy in the 1990s or the 1980s? That seems unlikely, or it would at least require some explanation as to exactly why and how people on Wall Street became greedier leading up to the financial crisis than they were at other times in the past. The conflict of interest story for credit rating agencies fails to explain their poor ratings of mortgage-backed securities. The conflict of interest in the “issuer pays” model was not new with the housing bubble. Credit rating agencies had been running on that model for forty years without anything resembling the massive systemic over-rating of securities revealed in 2008.

We need some change in their activity to explain a change in the outcomes of their rating process. And that change came through the underlying securities they were rating and the market behind those securities. But consider why the potential conflict of interest was not a problem in previous decades. There are at least three related reasons why credit rating agencies gave fairly accurate ratings for decades under the “issuer pays” model.

First, there were hundreds, perhaps even thousands, of firms seeking ratings for their bonds and other securities. This large pool of customers meant that the threat of any single firm taking their business elsewhere because they did not receive a favorable rating was relatively small. Second, if credit rating agencies were to give biased ratings to gain business, they would suffer significant losses of future business if investors didn’t trust them to give accurate ratings. The potential losses in the future would likely far outweigh the gains from any individual compromise on the quality of ratings. Third, the types of securities the agencies rated were generally “vanilla,” that is standard, securities. This meant that there was a long history of assessing the credit-risk of these securities. It also meant that folks in the market would be able to assess the quality and performance of the securities relatively easily for themselves.

Any systemic overrating would thus be detected quickly in the market, thereby tarnishing the rating agency's reputation.

But several important changes occurred with the explosion of mortgage related securities created in the early 2000s. Instead of simple vanilla securities, mortgage securities were far more complex. Not only that, but there was also a great deal of financial innovation occurring as firms created increasingly exotic (i. e. complex) securities. Part of the reason they were doing this was because mortgage-related securities tended to be much more profitable, and therefore worth the effort of innovating. These securities were lucrative for credit rating agencies too.

The final piece, and perhaps the most important when it comes to conflicts of interest, was that mortgage-related securities were being generated by a small handful of extremely large firms—Fannie Mae and Freddie Mac, the five U. S. investment banks, and a few other structured finance groups at the largest commercial banks. Instead of having hundreds of customers, mortgage-security departments at the credit rating agencies might have most of their business coming from fewer than a dozen major customers. The threat of any of those customers leaving, especially the largest ones, would have a significant impact on the bottom line of these departments—which meant the originators of these mortgage securities had much greater leverage over rating agencies than smaller vanilla securities originators had in the past.

Although we can see how the conflict of interest problem for rating agencies using the “issuer pays” model was much greater in the early 2000s than in previous decades, I am not convinced it was the primary problem. Instead, it made it easier for analysts to turn a blind eye to the deeper problems in the mortgage market and not ask hard questions about whether their models for assessing the riskiness of these securities were accurate or robust. That deeper problem was the lack of knowledge and experience of how these new securities would perform over time, the failure to exercise due diligence in evaluating the quality of the underlying mortgages, and the relatively naive assumptions about national housing prices and the limitations of diversifying risk.

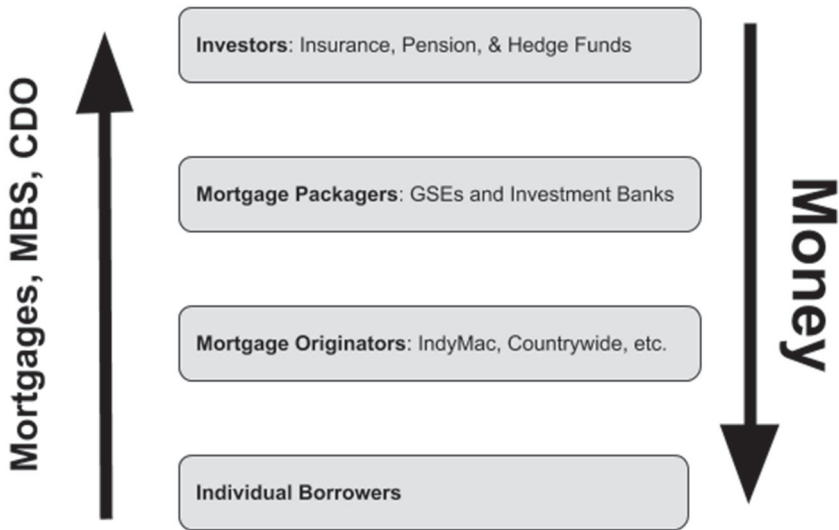
Analysts at the credit rating agencies relied on the information provided by the mortgage originators regarding the credit scores, income, down payment, LTV ratios, etc. of the loans backing a MBS. They did not check for fraud in the origination, and there was no clear way for them to do so. Multiple loan officers, originators, and packagers had signed off on the loans. Still, analysts should have been asking harder questions about whether there was an asset bubble in housing, and whether there were increasing reports of fraud throughout the country. Careful thought about

those two issues could have had a significant impact on CRAs' willingness to rate all these mortgage securities so highly.

Another knowledge problem found among analysts in CRAs and in large banks, were faulty assumptions about the housing market. One assumption was that housing prices might fall locally, but the odds of a nationwide housing price decline were minor and unprecedented (neither of which turned out to be true). Just to be safe, they sometimes modeled a worst-case scenario of national housing prices falling by two or three percent. That is nowhere near the ultimate thirty percent housing prices ended up declining. Rating agencies also misunderstood how much mortgage financing in the mid-2000s was predicated on rising housing prices.

All of the foregoing issues show that rating agencies were key players in creating hundreds of billions of dollars of mortgage securities with the highest credit rating. They facilitated both the housing bubble and the financial crisis by allowing money to flow from large institutional investors to ordinary borrowers (Figure 4.2). Without high AA and AAA ratings, MBS and CDOs could not have been purchased by the largest institutional investors like pension funds and insurance funds. Without the high ratings, commercial banks would have been much less likely to buy MBS because they would not have received special regulatory benefits of holding less capital against "safer" assets. And if none of these institutions were buying MBS and CDOs, Fannie, Freddie, and investment banks, would not have created nearly as many, which means they would not have purchased as many mortgages. Purchasing fewer mortgages, in turn, would mean that loan origination companies would have had a harder time selling new mortgages, and so would have issued fewer mortgages altogether.

These AA and AAA ratings were necessary for hundreds of billions of dollars to flow into the housing market. The ratings were also critical in the shadow banking system. How much capital banks had to hold in reserve against their assets depended on the credit rating of those assets. Repo prices depended in part on the rating of the assets being exchanged. And insurance contracts on MBS and CDOs were based upon credit ratings—not only of the mortgage derivatives themselves, but also of the company issuing the insurance. American Insurance Group (AIG) was one of the largest companies in the U. S. It had subsidiary companies in fire insurance, life insurance, car insurance, and on and on. In the early 2000s, one of their subsidiaries insuring financial assets began making tons of money as they issued huge amounts of insurance on a newly burgeoning asset class: mortgage-backed securities.

Figure 4.2: Flow of Funds and Mortgages

Most of the insurance contracts sold by AIG and a few others were called Credit Default Swaps (CDS). The basic idea was that an investor might hold a lot of a particular asset in his portfolio. While he believes the asset will perform well, he may also want to limit how much money he can lose if the assets decline in value. He can buy a credit default swap from AIG. The exact terms vary, but basically, he agrees to pay AIG a monthly or quarterly premium in exchange for AIG agreeing to compensate him if the value of the underlying asset declines a certain amount. Sometimes the contract meant AIG would pay him the difference between the insured value of his asset and the market value of his asset. Other times the contract would require AIG to buy the asset itself at the insured price if its market price dropped below a certain point.

These credit default swaps had other terms that created unanticipated problems for AIG and other insurers. Insurers often agreed that they would post collateral if the value of the asset they insured fell below a certain point. The reasoning was that this event made it far more likely that the insurer would have to pay the buyer of insurance—and that party wanted some assurance that the insurer will be able to honor the contract. Posting collateral gives that assurance. However, posting collateral is costly for the insurer because they can no longer use the collateral to borrow in the

money market or to back other contracts. But insurers were also required to post collateral if the credit rating of the asset declined or if the credit rating of the insurer declined.

Part of what bankrupted AIG was that during 2007 and 2008, the value of most of the assets they insured declined. But beyond that, credit rating agencies also downgraded thousands of MBS and CDOs from late 2007 through the end of 2008. Those downgrades triggered collateral calls from all the parties AIG had sold insurance to. But what ultimately broke AIG was that their CDS were built upon AIG's sterling credit rating. If their credit rating declined, AIG would be required to post more collateral on basically all their insurance contracts simultaneously. After downgrading AIG in May and June, all three major credit rating agencies downgraded AIG's credit rating again on September 15, 2008. This time AIG's rating dropped below the level stipulated in their CDS contracts and triggered huge collateral calls for an additional \$24 billion.

Beyond the collateral problems experienced by asset insurers like AIG as the credit rating agencies issued downgrades was how these downgrades contributed to panic and shock in the market. Over several months, the ratings agencies issued thousands and thousands of downgrades. Usually, downgrades are incremental, AAA to AA or BB to BB-, but during the waves of downgrades in 2008, agencies often downgraded MBS and CDOs several levels at a time. For some institutional investors, particularly pension and insurance funds, credit downgrading of MBS and CDOs meant they were legally obligated to sell these assets since they could only hold investment grade securities. Of course, putting billions of dollars of securities that have just been downgraded on the market drove the price of those assets through the floor—contributing to paper losses and debt deflation.

One of the most important problems during the 2008 financial crisis was determining what the trillions of dollars of mortgage-related securities and derivatives were actually worth. The type of MBS mattered. Were the mortgages within the security prime or subprime? Were the mortgages originated in the late 90s, the early 2000s, or the mid-2000s? Were the underlying mortgages ARM or FRM? What were the loan to value ratios of the underlying mortgages? All these factors strongly correlated with whether individual mortgages were likely to default and therefore with how claims to a pool of mortgages would likely perform.

The actual worth varied a lot by security. For example, although AAA MBS and AAA CDOs carried the same credit rating, they performed very differently with CDOs being downgraded further and more frequently in almost every case. The idea behind MBS and CDOs had been to diversify

risk and prioritize repayment. With a pool of a thousand mortgages, one person's default should have relatively little impact on the value of the pool. It also should have little influence over whether some other person in the pool will default on their mortgage. It turned out there was higher correlation between mortgage defaults, even across diverse geographic areas, than anyone expected.

But there was a huge problem with CDOs: they did very little to diversify risk. Regulators, bankers, and investors assumed that the failure of one MBS would have relatively little influence or relationship with another MBS. They failed to account for general trends in housing prices that could affect most MBS funds. Even more importantly, they neglected to consider that the underlying MBS behind CDOs would all have similar problems because they were all lower tranche MBS. As mortgage defaults across the country rose, the percentage of underlying mortgages defaulting in a pool backing MBS could rise from a rate of two percent to a rate of eight or ten percent. That wiped out the lowest MBS tranches (equity, B, etc.), but didn't affect senior tranches. However, a CDO based on a pool of a thousand of low-tranche MBS could see upwards of 50% of the underlying assets go bad simultaneously.

But nobody knew exactly how much weight to put on each characteristic of the underlying mortgages. Furthermore, even assessing the underlying mortgages was extremely difficult, time-consuming, and expensive. To complicate things even further, often different kinds of mortgages were pooled together to diversify risk—which meant you couldn't just evaluate one standard mortgage for the whole pool, you had to look at most or all the mortgages individually. These pools would also have a mix of mortgages from different regions, adding another factor to consider about the likelihood of default in the face of housing prices falling at different rates in different parts of the country.

The 2008 financial crisis was created by hundreds of billions of dollars of losses from defaults on subprime and Alt-A mortgages. Those losses, which were significant, created over a trillion dollars of losses through mortgage derivatives distributed throughout the financial system. As the derivatives declined in value, over-leveraged banks and other firms like AIG had to write off hundreds of billions of dollars in paper losses. This made it harder to borrow in money markets. It also triggered collateral calls, credit downgrades, and declining levels of capital and lending. So even though the initial problem was in the housing market, 2008 is rightly called a financial crisis because it was the financial system that amplified and transmitted mortgage losses to the rest of the economy.

Notes

¹ Kusisto & Rexrode (2018), “Rising home prices push borrowers deeper into debt.”

² Wallison (2016), *Hidden in Plain Sight*.

³ White (2010), p. 13.

⁴ Ibid, p. 7.

⁵ Ibid, p. 9.

⁶ Ibid, p. 10.

CHAPTER FIVE

POLITICAL RESPONSES TO THE CRISIS

The 2008 financial crisis was not limited to financial markets. It spilled over into the political realm too. In fact, one of the most important stories of the crisis is how politicians and bureaucrats reacted to the crisis and attempted to mitigate its effects. This chapter attempts to tell several versions of this story according to different bureaucrats and different branches of the government. The first story follows the actions taken by Henry Paulson, the Secretary of the Treasury during the crisis. The second story follows the actions taken by the Federal Reserve at the direction of Ben Bernanke, then chair of the Board of Governors, and Tim Geithner, then President of the New York Federal Reserve Bank. The Treasury and the Federal Reserve were the most involved political bureaus. But Congress and other regulatory agencies also intervened in important ways.

The Meddling Secretary of the Treasury

Henry Paulson became Secretary of the Treasury on July 10, 2006. His tenure as secretary oversaw the worst financial crisis and economic recession since the Great Depression. He is also one of the more controversial figures in the 2008 crisis. Some scholars argue he intervened too much while other scholars argue he intervened too little. The difference of opinion centers squarely on one's view of the causes and mechanics of the crisis. Those who blame deregulation and market failure for the crisis think Paulson did not have a broad enough or firm enough response to check the crisis. On the other hand, those who think government policy contributed to the crisis argue Paulson intervened far too frequently during the crisis, thereby creating other problems and unintended consequences. The preponderance of evidence and arguments in this book suggests that Paulson's interventions, though well-intended, created many significant problems that exacerbated the crisis. Chapter six develops the argument that he did not do enough to stop contagion while chapter seven points out the shortcomings of that view.

Paulson's involvement in financial markets on behalf of the Treasury Department became significant and frequent starting in March 2008 after he brokered the bailout of the investment bank Bear Stearns. Paulson had spoken about the state of the economy before then, of course, but from that point on Paulson's team actively worked to create "solutions" to the impending crisis. Their handling of Bear Stearns set the expectation that no large financial institutions would be allowed to fail. Intentional or not, this created what economists call "moral hazard," and affected the behavior of those running large financial institutions as well as those lending to those institutions. Allowing Lehman Brothers to fail after setting the expectation that large financial firms would be rescued shocked markets. But a brief discussion of how the Treasury and the Fed were involved in bailing out Bear comes first.

Bear Stearns was founded in 1923. It was one of the oldest investment houses on Wall Street. It was also the smallest of the five major investment banks. In 2007, Bear Stearns opened two large MBS hedge funds. Both funds lost a significant amount of money and were shut down only a few months after they were opened. Although Bear Stearns took the losses of the funds onto its own books, these losses in and of themselves were far from catastrophic. They were significant because they set off alarm bells around Wall Street and laid the groundwork for the bank's eventual collapse. The quick failure of these two hedge funds made lenders wonder about the soundness of Bear's other investments, especially in mortgage derivatives. As lenders scrutinized Bear more closely, they became more reluctant to lend it money—charging higher rates and demanding more collateral. As a result, Bear began selling many of its assets, but at relatively unattractive prices.

In addition to the increasing costs and difficulty of borrowing money, Bear Stearns saw many of its institutional investors withdraw their funds, causing even more asset sales at fire sale prices. These withdrawals combined with difficulty borrowing and significant exposure to mortgage-backed securities were enough to drive its share price from about \$159 a year before to around \$30 a share a few days before the bailout. Bear Stearns was sold to JPMorgan Chase on March 14, 2008. Initially JPMorgan Chase offered \$2 a share but later paid \$10 a share for the company.

This acquisition would not have occurred without help from the Federal Reserve and the support of the Treasury. Besides their involvement in negotiating the agreement itself, the FED offered JPMorgan a credit line of \$29 billion. The Fed also agreed to buy approximately \$30 billion of Bear's riskiest mortgage related assets. Technically, the Fed was not

allowed to buy these risky MBS. To get around this technicality, they created a special holding company called Maiden Lane I, which bought the assets with money lent to it by the Fed. This would not be the last time the Fed engaged in the practice of buying risky assets from struggling firms using a shell company. Maiden Lane II and Maiden Lane III were waiting in the wings for the right opportunity.

Although the Treasury Department did not appear to put any money in the deal, Paulson had to sign off on the risk of loss to taxpayers and other aspects of the transaction. Because the Federal Reserve remits its profits to the Treasury every year, the Treasury stood to gain if the Fed earned money on the assets it bought from Bear. But if these assets performed poorly and the Fed lost money, less money would be remitted to the Treasury. Regardless of how the \$29 billion of toxic assets bought by the Fed performed, the Bear deal was widely seen, and resented, as a bailout.

Paulson's hope that keeping Bear Stearns from entering bankruptcy would prevent greater panic in financial markets seemed to come true. There was no noticeable panic or decline in financial markets for several months after the bailout. It was not until the end of the summer that major problems flared up again. Still, other economic problems, such as rising unemployment, increasing bankruptcy among mortgage origination companies, and declining housing prices continued to worsen. Various mortgage origination companies were still failing in droves. But failure was beginning to spread into commercial banking, particularly banks heavily involved in issuing subprime or Alt-A mortgages. One of the largest banks, Indymac, had over \$300 billion in assets and was taken over by the Federal government in July of 2008.

Indymac bank was founded in 1985 as Countrywide Mortgage Investment by David Loeb and Angelo Mozilo. Indymac bank split off from Countrywide Financial in 1997. Indymac acquired SGV Bancorp in 2000, Financial Freedom in 2004, and New York Mortgage Company and Barrington Capital Corporation in 2007. Based in California, Indymac was known for its subprime loans. In 2008, Indymac saw huge depositor withdrawals from the end of June through its failure in July. A letter from Senator Schumer questioning the viability of the bank coincided with the beginning of its depositor run in June. The bank closed its doors on July 11th. Three days later it reopened as Indymac Federal FSB, a bridge bank run by the FDIC. In March 2009, what was left of Indymac Federal FSB was acquired by OneWest Bank FSB.

September marked the beginning of what most people refer to as the 2008 financial crisis. The month kicked off with the impending collapse of the two major mortgage finance government-sponsored enterprises (GSEs):

the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). Paulson felt it was essential that they be prevented from failing outright by nationalizing them.

Fannie Mae was chartered by the U.S. government in 1938 and privatized in 1968. Freddie Mac was chartered by Congress in 1970 to compete with Fannie Mae. By the summer of 2008, they had over a trillion dollars of outstanding debt held around the world. Their failure would likely have sparked a run across financial markets and on U. S. government debt. Their failure would also have caused an implosion of the already declining mortgage market and wreaked havoc in domestic financial markets. But their failure would also have created significant international turmoil. Both GSEs were placed into a conservatorship by the director of the Federal Housing Finance Agency, James B. Lockhart III at the urging of Secretary Paulson, on September 6, 2008. A major part of that conservatorship included the Treasury committing to support both Fannie Mae and Freddie Mac financially, thereby providing liquidity and stability to the mortgage market. Keeping Fannie and Freddie afloat was actually the costliest part of the 2008 financial crisis to the taxpayer. By one estimate, the Treasury ended up providing \$189.5 billion so that Fannie and Freddie could continue repaying their creditors.

Lehman Brothers

The most important catalyst of the 2008 crisis, according to the conventional wisdom, was the failure of the investment bank Lehman Brothers. This was the largest bankruptcy in U. S. history, and it occurred at the heart of the financial system. Many people argue that its failure created panic that caused liquidity for other financial firms to evaporate. Lehman was the first domino that would set the stage for later failures and bailouts: AIG, Reserve Primary Fund, Washington Mutual, Wachovia, etc. Besides creating direct losses for other firms, the primary damage caused by Lehman's failure was increasing fear, panic, and uncertainty among investors and lenders in financial markets.

Lehman's failure took everyone by surprise. Similar to Bear Stearns, Lehman's failure came abruptly. Although everyone knew the firm was in trouble the Friday before it failed, many thought that bankruptcy was still avoidable, or if not avoidable, at least several weeks or months away. Yet first thing the following Monday morning, Lehman declared bankruptcy. Besides its abrupt decline, people were also taken by surprise because they thought the government would not allow a large firm like Lehman to fail.

After all, Lehman Brothers was much larger and more interconnected with financial markets than Bear Stearns had been. Furthermore, financial markets and the economy were in much worse conditions by September than they had been in March. In what world would Bear be bailed out and Lehman not? Well, in a world with political pressures. Paulson and Bernanke had taken significant heat in the press and from members of Congress for bailing out Bear. Even as he was trying to orchestrate a private deal to rescue Lehman, Paulson repeatedly told the CEOs negotiating the deal that there would not, and could not, be any government funds involved. Nor was this some newfound respect for legal restrictions on Treasury and Fed funds, since the Fed and Treasury would supply ample funds for future bailouts, some within a week of Lehman's failure.

For advocates of the conventional wisdom, Lehman's failure is the poster child of government officials doing too little to stem the crisis. But for dissenting scholars, Lehman serves as a critical example of an unintended consequence of Paulson's involvement in the Bear Stearns bailout. The leaders at Lehman were convinced that they would receive a bailout if their financial situation worsened. After Bear was bought by JP Morgan, Lehman Brothers doubled down on its previous strategies to dig itself out of a hole—believing that it had a government backstop. One piece of evidence for this is that Lehman did not try to raise much capital between March and September to forestall its bankruptcy. Lehman also rejected at least one offer to be purchased by another firm over this period because they thought the share price offered was too low. Finally, the CEO of Lehman, Dick Fuld repeatedly asked for, and expected to get, a “Jamie Deal” the final weekend before Lehman declared bankruptcy.

Part of what made Lehman's bankruptcy so disruptive was its disorderliness. They had not expected to go bankrupt and so had spent almost no time planning how they would unwind their assets and their tens of thousands of financial positions. As the author Andrew Sorkin notes, Dick Fuld only alerted Lehman's lawyers Sunday evening that they would be declaring bankruptcy the next morning. This meant that Lehman's thousands of counterparties, and even some of its investors, discovered that their funds, trades, or positions with Lehman were frozen indefinitely until the bankruptcy court could sort things out.

You can find a plethora of details and stories about the events surrounding Lehman's failure in Andrew Ross Sorkin's book, *Too Big to Fail*, or the HBO film by that name. From these accounts we know that government officials did not want Lehman Brothers to fail. The weekend before Lehman's bankruptcy, Paulson and Geithner gathered the CEOs of

the largest banks on Wall Street at the New York Federal Reserve building to work out a rescue package. Paulson wanted a fully private deal because he insisted no government money could be used. The story recounts arguments back and forth among the participants about what Lehman was worth, how much was needed to rescue the firm, and who would put up the money.

During these meetings, the CEOs were unable to put together a large enough package to rescue Lehman. Things looked bleak on Sunday until a British bank, Barclays, expressed serious interest in acquiring Lehman. Paulson jumped on the opportunity and put them in conversation with Lehman. Unfortunately, Paulson received a call from British regulators later Sunday. They inform him that Barclays would not be allowed to acquire Lehman until they had shareholder approval—a process that could take weeks. Only at that point, early Sunday evening, did federal officials encourage Lehman to declare bankruptcy the next day.

Although the huddle of Wall Street executives over the weekend didn't save Lehman Brothers, it did save Merrill Lynch. During the discussions, the CEO of Merrill was on the phone with executives at Bank of America to discuss an acquisition deal. Paulson gave his verbal blessing of the deal even as plans to rescue Lehman were stalling. Merrill Lynch had been in operation over a century when it was acquired by Bank of America in September 2008. Bank of America received \$20 billion from the Treasury for the potential losses due to the risky mortgage loans. There is also evidence that the CEO and board of Bank of America were pressured into completing the acquisition, even after Merrill's losses in the fourth quarter of 2008 rose above \$15 billion.

After Lehman failed and Merrill Lynch had agreed to be acquired by Bank of America, Morgan Stanley and Goldman Sachs were the only independent investment banks left. But within a week they were allowed to become bank holding companies, which meant they had access to the discount window at the Federal Reserve if they needed additional liquidity. By the end of September 2008, there were no more investment banks.

There were several other notable bankruptcies, bailouts, and takeovers following Lehman Brothers. The American Insurance Group (AIG) received significant funding from the Federal Reserve and the Treasury starting a few days after Lehman's failure. AIG subsequently received more money later in 2008 to keep it afloat. The AIG bailout was one of the more controversial bailouts because the government took a huge ownership portion in AIG—one which was challenged by shareholders—and because most of the money given to support AIG immediately went

out the door to their creditors and counterparties, the biggest of which was Goldman Sachs. A further point of controversy was that this bailout was not necessary to support any of the subsidiaries of AIG. By law, its life insurance, health insurance, auto insurance, and other insurance divisions were separate companies that could not be raided by the creditors of AIG Financial or the AIG holding company. The bailout primarily benefited AIG's counterparties and shareholders.

Paulson and Geithner bailed out AIG because they were afraid of financial contagion. AIG had sold CDS insurance on MBS to hundreds of counterparties. If it failed, those parties would not receive the collateral they were entitled to through their contracts. The magnitude of AIG's shortfall was also frightening. In a matter of days AIG found itself on the hook for tens of billions of dollars in collateral calls. Peter Wallison claims that AIG's failure would not have been catastrophic, just as the failure of your insurer failing is not catastrophic, as long as you don't need to cash in on the insurance policy.¹ He claims that although market conditions were triggering collateral calls from AIG, technically no one's "house" had burned down. AIG's credit rating had been downgraded, but that was not the same as actual losses on the underlying insured assets.

The day after Lehman failed, the Reserve Primary Fund, the largest money market mutual fund at the time, had to take significant losses on money it had lent to Lehman Brothers. Even though this was initially only a paper loss, from an accounting standpoint the loss was large enough to cause Reserve Primary Fund to "break the buck," or not be able to meet all of its obligations. This was unprecedented for a money market mutual fund and triggered a massive run on the Reserve Primary fund and on money market mutual funds in general.

Paulson created a federal insurance program for money market mutual funds initially using money from the Treasury. The key element of money market mutual funds Paulson wanted to preserve was that they were an important lender in the shadow banking system. They channeled hundreds of billions of dollars from investors into short-term commercial paper, like Lehman's, which allowed larger borrowers to continue rolling over their debt rather than having to sell their assets to raise money, which would contribute to more fire sale prices and debt deflation. The program he created was similar to federal deposit insurance. It was meant to reassure investors and prevent them from withdrawing more money from the industry.

The Unlucky Ones

Despite Paulson, Bernanke, and Geithner's penchant for bailing out large financial firms, there were several that they chose not to bail out. They allowed Washington Mutual, the sixth largest bank in the U. S., with over \$300 billion dollars of assets, to fail. They also forced Wachovia, the fourth largest bank in the U. S., to be acquired. And even the process of acquisition was messy. Wells Fargo initially expressed interest in buying Wachovia but backed off due to concerns about some of Wachovia's assets. Citigroup then made an agreement with the government to purchase Wachovia for around \$1 a share. This deal included a provision where the FDIC agreed to absorb some of the losses on Wachovia's assets. Yet only four days later, Wells Fargo announced that it would acquire Wachovia at a higher share price without government assistance. Citigroup protested vociferously and filed a lawsuit against Wells Fargo. While Citi may have had the legal high ground, it made no economic sense for Citi to acquire Wachovia since Citi was one of the weakest banks on Wall Street.

The inconsistent intervention of policy makers, of whom Paulson is the central figure, is rather remarkable: Save Bear but let Indymac go, save Fannie and Freddie but let Lehman go, save AIG but let Primary Reserve Fund go, save Goldman Sachs and Morgan Stanley but let Washington Mutual and Wachovia go. No wonder market participants were deeply uncertain about what to expect from policy makers during the depths of the financial crisis. The past six months had seen incredible inconsistency in government bailouts.

Federal Reserve Activism

Besides its explicit involvement in many of the government bailout schemes, such as providing funding as well as meeting space for bank executives and government officials to hash out rescue plans, the Federal Reserve also intervened by creating many lending programs to mitigate the economic downturn and the financial crisis. One of its major tools was to reduce interest rates—particularly the overnight federal funds rate (FFR). Another tool was a new policy of paying interest on bank reserves. Finally, the Federal Reserve created many new lending programs and facilities to provide greater liquidity to financial firms as confidence in financial markets evaporated and fewer and fewer investors were willing to lend money to anyone under any condition.

The Fed changed the federal funds rate target eleven times from May 2000 to December 2001 to prevent a recession in the wake of the dot com

bubble and the 9/11 terrorist attacks. The target fed funds rate fell from 6.5% to 1.75%. The dramatic decrease in the interest rate in a short period of time led to cheaper credit, which in turn fueled people's demand for housing and subsequently put upward pressure on housing prices. To give you a sense of how dramatic this swing in interest rates was, consider how much someone's monthly mortgage payment would change if we look only at principal and interest payments per \$100,000 of mortgage between the peak 30-year fixed mortgage rate in May 2000 (8.64%) and the trough 30 year fixed mortgage rate in June 2003 (5.21%).² At 8.64%, a borrower's monthly payment would be \$779. At 5.21%, a borrower's monthly payment would be \$550. That's a swing of \$229 a month or \$2748 a year.

To conceptualize this another way, for \$779 a month, you could borrow \$100,000 at 8.64%. However, at 5.21%, for \$779 a month you could borrow \$141,700. That is to say, you could borrow 41.7% more for the same monthly payment at the new interest rate. Is it any surprise that mortgage borrowing and house prices increased rapidly over this period? If that weren't enough, the FED lowered the interest rate even further in June 2003 to 1%, which was the lowest rate in 45 years. Adjustable rate mortgages (ARMs), which exploded in popularity during the housing bubble, were even more closely attached to the FFR and other short-term interest rates.

Eventually, the FED tried to reverse the damage by increasing the interest rates from 1% in June 2004 to 5.25% in June 2006. The FFR remained at 5.25% until August 2007. Yet by October 2008, the Federal Funds Rate was back down to 1% and would eventually reach an unprecedented target range between 0%-.25% which would remain constant for over half a decade.

Besides lowering the federal funds rate rapidly from 2007-2008, the Federal Reserve also implemented a new policy of paying interest on reserves held by banks. When Congress passed the Financial Services Regulatory Relief Act of 2006, the bill included a provision allowing the FED to pay interest on reserves, but not until October 2011. The Emergency Economic Stabilization Act moved the start date for this policy earlier to October 2008.

Before the crisis, banks held less than \$10 billion dollars in reserves at the Fed. At the time interest on reserves (IOR) was implemented, their reserves had grown to \$280 billion. A year after IOR, banks held more than \$1 trillion in reserves. Total bank reserves reached a peak in August 2014 at just over \$2.75 trillion. That total has declined to just under \$2 trillion as of August 1, 2018. Two implications of paying interest on reserves deserve notice.

First, the Fed flooded the market with bank reserves as part of its attempt to mitigate the financial crisis. Second, even small changes in the rate of interest paid on such a large balance of reserves can have significant repercussions. The Board of Governors sets the rates for interest on reserves. For example, a 1% change in interest on reserves means an additional \$10 billion dollars in payments from the Fed to banks per trillion dollars of reserves. That is money coming out of the Fed's profitability and therefore out of its annual remittances to the Treasury. Each .25% Chairman Powell and the FOMC increase IOR means additional payments of about \$5 billion to banks.

In September of 2008, the Federal Reserve implemented the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) to provide funding to commercial banks that wanted to buy "high-quality" asset-backed commercial paper from money market mutual funds (MMMFs). These MMMFs were encountering a spike in demand for withdrawals from their investors due to the Reserve Primary Fund breaking the buck. This facility was intended to provide additional liquidity so that the MMMFs would be able to sell their holdings of commercial paper.

In October of 2008, the Fed created two additional facilities: the Commercial Paper Funding Facility (CPFF) and the Money Market Investor Funding Facility (MMIFF). The CPFF created an LLC that would purchase new commercial paper directly from issuers. The Federal Reserve would lend money to the LLC through the CPFF to fund these purchases. In effect, the Fed was buying commercial paper to provide liquidity to those firms that were having trouble raising funds by issuing commercial paper in the open market.

The MMIFF was something of a cross between the AMLF and the CPFF. The goal was roughly the same: provide funding in the commercial paper market. The MMIFF created several LLCs that the Fed would lend money to. These LLCs were then authorized to buy certain assets from MMMFs that were still facing heavy withdrawal demands from their depositors and needed to be able to sell their assets.

In 2010, the Treasury and the Federal Reserve implemented a new policy called "stress testing" to determine how a bank, a company, or an asset and liability portfolio will react to certain financial situations. The tests involve computer-generated simulations and models to determine how companies will fare to improve risk management. Stress testing expanded under the Dodd-Frank Act, and was implemented by subsequent regulation called Comprehensive Capital Analysis and Review (CCAR) in 2011. One of the confusing elements behind stress testing was that no

clear standard existed to determine whether a bank's balance sheet could withstand a significant enough amount of stress. The banks ran models to "stress test" their balance sheets, then regulators would run their own models and decide whether banks needed to increase their capital or reduce the risk on their balance sheets.

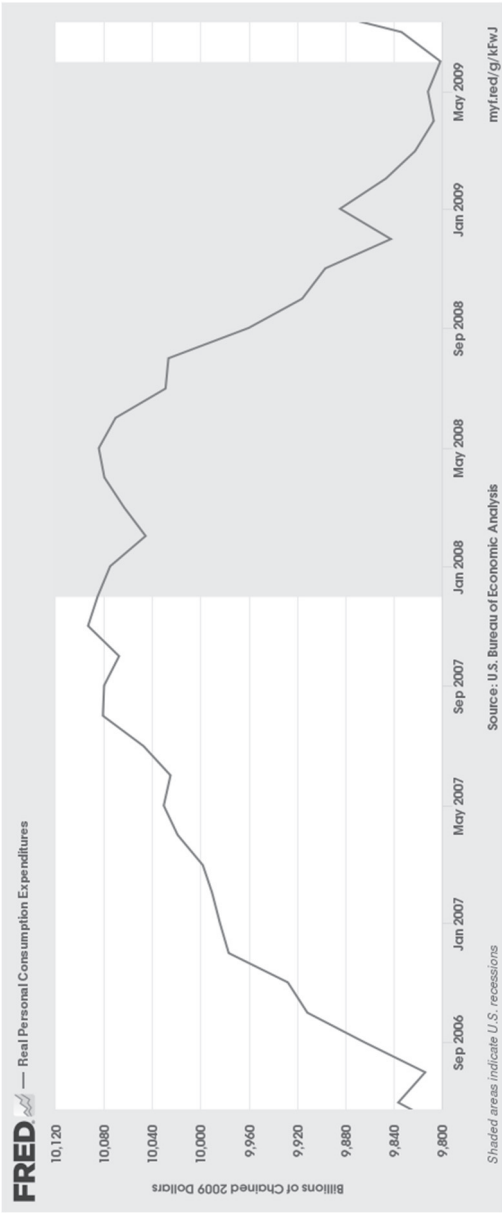
Congress

In early 2008, the Bush administration proposed a stimulus plan to get the economy going after the decline at the end of 2007. Congress modified and passed Bush's stimulus package in February. The stimulus took the form of an income tax rebate. The plan was that rebating money to taxpayers would be like a tax cut to encourage more spending and kickstart the economy. This was a thoroughly Keynesian idea that increasing spending is the way to combat economic decline. In the 1980s economists justified tax cuts, not for their effects on demand or consumer spending, but for their effect on people's investment and work decisions. The supply-side idea was that lower taxes encourage individuals and businesses to produce more.

Bush's tax rebate did not fit the supply-side mold because it did not change the existing tax structures and incentives around investment and work. In fact, it had almost the opposite effect. People expected their taxes to go up in the future in order to make up the deficit created by sending \$168 billion from the federal budget back to citizens. Instead of spending more and stimulating demand, people saved their rebates. We can see a minor increase in discretionary consumption spending after the rebate was passed in February 2008 (Figure 5.1), but then it declines dramatically. As we know from the rest of the story, Bush's stimulus plan was unsuccessful in lowering unemployment or in preventing the financial crisis from developing later that year.

The other major action taken by Congress in 2008 was passing the Emergency Economic Stabilization Act. This act allowed the Fed to begin paying interest on bank reserves and created the Troubled Asset Relief Program (TARP). Secretary Paulson had initially proposed TARP not long after Lehman failed. At first, it was rejected by Congress. But after one of the largest single day stock market declines in history, Congress reconsidered and passed the bill. President Bush signed it into law on October 3, 2008. Even though TARP was late to the game, most people consider it to be *the* bailout of Wall Street.

Figure 5.1: Real Consumer Spending



The Troubled Asset Relief Program gave the Treasury the ability to purchase up to \$700 billion of “toxic” illiquid mortgage-backed securities and other assets from institutions in order to restore liquidity to the money markets and to strengthen bank balance sheets. The fund was reduced to \$475 billion by the Dodd-Frank Wall Street Reform and Consumer Protection Act. Ultimately, TARP used \$245 billion to stabilize banks (not by buying bad assets but by buying stock and adding to their capital), \$27 billion for programs to increase credit availability, \$80 billion for the U.S. auto industry, \$68 billion to stabilize AIG, and \$46 billion for foreclosure prevention programs.

When the Treasury sold its last major holdings from TARP in Ally Financial, it declared that it had made over \$15 billion for the taxpayers. While earning \$15 billion may seem like a big win for the taxpayer, it distracts from all the other government bailouts. More importantly, although many of the emergency loans and cash infusions have yielded positive returns since the market has recovered, the government has kept many unproductive firms in the market. A big chunk of this “profit” came from banks who didn’t want TARP money but were forced to take it anyway.³ Meanwhile, the bailout of the auto companies yielded a loss.

In 2009, President Obama advocated for and signed another stimulus bill—one much bigger than Bush’s stimulus bill. By this point, the financial crisis was over but unemployment had risen steeply, housing prices were low, stock prices were low, and it was obvious that the economy had just gone through a severe recession. Seeing the failure of the Bush tax rebate, and preferring to see more government programs and spending anyway, the Obama stimulus was almost entirely composed of government spending. The American Recovery and Reinvestment Act (ARRA) of 2009 was initially \$787 billion. The goal was to put Americans back to work and to fund “shovel-ready projects” in the spirit of the New Deal. Unfortunately, things did not turn out the way the administration expected.

As a previous chapter noted, White House budget officials said this bill would prevent unemployment from rising past 8%. They warned that without the stimulus plan, unemployment could reach 9%. Well, the stimulus plan was passed yet within a year unemployment was at 10%, the highest level since 1983, and there were three million more unemployed. Of course, it is possible that the economy was in worse shape than anyone knew, and so unemployment would have been even higher without the stimulus. It is possible but unlikely. A later chapter deals with a variety of counterfactual scenarios and explains more thoroughly why it is unlikely that things could have been worse without the ARRA stimulus. But regardless

of whether the economy would have been worse or not, we should note that the forecasting used to justify almost a trillion dollars of additional spending was quite inaccurate.

Another important legislative intervention that occurred after the crisis was the passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act in 2010. The act created thousands of new regulations for the financial system and gave greater scope to government agencies regulating the financial sector. It created a new agency called the Consumer Financial Protection Bureau (CFPB). This agency is housed within the Federal Reserve and does not require Congress to appropriate funds for its operation year by year. It polices predatory mortgage lending and restricts how much profit mortgage brokers can receive by selling consumers loans with higher payments. The CFPB also generates regulations requiring lenders to provide certain information and disclosures to consumers. Perhaps most importantly, the CFPB is relatively insulated from Congressional oversight and can levy fines and lawsuits against banks and other financial institutions.

Dodd-Frank also created the Financial Stability Oversight Committee and Orderly Liquidity Authority which provides money to help dismantle systemically important financial institutions (SIFIs) when they fail. The regulations are meant to ensure that taxpayer money is not used to bail out companies again like in 2008. The act also has the authority to break-up larger banks that threaten the financial system and allows regulators to increase capital reserve requirements.

One of the more divisive, and relatively little understood, aspects of regulation coming out of Dodd-Frank was the Volcker Rule. Named after former Fed Chairman Paul Volcker, the rule restricts the types of investments banks can make. Speculative trading would be limited, and proprietary trading would be eliminated altogether. This rule would reinstate Glass-Steagall and try to divide commercial banking from investment banking. Dodd-Frank also increased the regulation of derivatives.

One deep irony of the crisis is that those political actors who were most involved in trying to mitigate the crisis and proposing solutions to prevent future crises were either the most ignorant of the causes before the fact (Paulson & Bernanke) or were active contributors to creating the crisis itself (Barney Frank & Chris Dodd). Paulson, for example, repeatedly claimed that no crisis was imminent, in 2007, and that the crisis had been contained, again and again, in 2008. Barney Frank and Chris Dodd seemed completely ignorant of the true financial state of Fannie and Freddie and unaware of how government housing policy contributed to the housing

bubble by lowering underwriting standards. Yet these were the folks making decisions during and after the crisis.

Notes

¹ Wallison (2016), *Hidden in Plain Sight* pgs. 77-79

² Data from FRED: <https://fred.stlouisfed.org/series/MORTGAGE30US>

³ Kovacevich (2014) and Allison (2012)

PART II –

WHY DID IT HAPPEN?

CHAPTER SIX

CONVENTIONAL WISDOM: THE FREE MARKET FAILED

At this point, you know that the financial crisis was precipitated by the housing bubble and collapse. Through complex financial engineering, trillions of dollars of mortgages had been sliced and diced into a variety of derivatives that were bought by investors throughout financial markets. You understand how the financing structure of the large investment banks was built on rolling over short-term debt through selling commercial paper and engaging in repurchase agreements. You know how falling house prices meant rising defaults on mortgages, which in turn drove the value of MBS and CDOs down, resulting in panic, margin calls, and a cycle of debt deflation and fire sales.

What hasn't been fully addressed yet is how this financial system, including degraded mortgage underwriting standards, came to be. Whose idea was this anyway? Who should we blame? There are many opinions out there, some of which you have read or heard. This chapter and the next survey the leading explanations of why and how the financial crisis developed according to the conventional wisdom, and then according to the dissenters.

The conventional wisdom runs something like this: in an era of deregulation beginning in the late 1970s and ending with the repeal of Glass-Steagall under the Financial Services Modernization Act of 1999, traditional commercial banks and new unregulated shadow banking institutions created massively complex financial instruments and used them to increase their leverage and take enormous risks.¹ Financial firms' massive losses, triggered by rising default rates on subprime mortgages, falling stock prices, and general market panic, would have brought down the entire financial system through rampant contagion if left unchecked.² To prevent total financial collapse, the U. S. Government stepped in with loans and guarantees to supply liquidity to markets that had frozen. This involved supporting individual "too big to fail" or "systemically important" institutions like Bear Stearns, Fannie Mae and Freddie Mac, AIG, the Reserve Primary Fund, and many others. But it was ultimately the major

comprehensive government programs like the Troubled Asset Relief Program (TARP) and various Federal Reserve loan facilities that restored confidence.

Yet those were only temporary fixes. Private banks created the crisis in the first place and could do so again. In fact, many of them were even larger after the bailouts and more prone to take greater risks with other people's money than before. To avert another crisis, "re-regulation" was essential.³ The Dodd-Frank financial reform bill attempted to prevent banks from repeating their mistakes of taking on too much leverage by imposing thousands of new regulations. Reform was also necessary to combat the fraud and waste of government bailout money.⁴ In short, the conventional wisdom holds that deregulation allowed bankers and investors to make huge mistakes causing millions of innocent people to lose their jobs, houses, or retirement savings.⁵ And these mistakes would have destroyed the entire financial system if the government had not stepped in to restore confidence.

Another way to describe the conventional wisdom is that the 2008 financial crisis was fundamentally a market phenomenon. It happened because of relatively unrestrained market forces. Although bankers and Wall Street take the lion's share of the blame, there were also millions of people across the country who were choosing to buy houses and borrow huge amounts of money to do so. The implication, of course, is that more rules restricting what individuals and firms are allowed to do, like issue risky mortgages, would have prevented the crisis and will prevent future crises. But within the conventional wisdom are three related yet distinct explanations.

The first explanation is that markets are characterized by irrational exuberance. This view is most closely associated with the Nobel prize winning economist Robert Shiller. The second explanation focuses on the role of deregulation and "market fundamentalism" under the Bush administration (though for some authors it reaches back to Reagan). Advocates of this view range from legal scholars like Richard Posner to finance scholars like Gary Gorton. Finally, the third explanation of the conventional wisdom centers on journalistic accounts of greed, exploitation, and manipulation by Wall Street bankers by authors like Michael Lewis and Andrew Sorkin.

Irrational Exuberance and Animal Spirits

One explanation of the financial crisis holds that derivatives traders, investment bankers, hedge fund managers, and other financial actors, as

well as millions of house buyers, all made bad judgments because they were overly optimistic about the riskiness of their investments and the real return to the assets they held. This overly optimistic behavior led to a dramatic bubble, not only in housing prices, but also in the stock market and in the valuation of complex financial assets like mortgage-backed securities, collateralized debt obligations, and credit default swaps.

Robert Shiller is the leading advocate of this explanation of asset bubbles and financial crises deriving from too much optimism. His most famous public work on the topic is *Irrational Exuberance*. Another well-known advocate of irrational exuberance fueling asset bubbles is Charles Kindleberger in his book *Manias, Panics, and Crashes: A History of Financial Crises*.

The irrational exuberance argument claims that financial markets do not always operate according to the real factors or underlying fundamentals of financial assets such as bonds, stocks, derivatives, etc. Sometimes they operate according to psychological factors. In this sense, irrational exuberance theories follow in the footsteps of John Maynard Keynes who wrote about how investment decisions were sometimes driven by “animal spirits” rather than by rational calculation.

The term “irrational exuberance” was actually coined by the former Chairman of the Fed, Alan Greenspan. He used the term during a speech in the 1990s to describe investment in internet startups before the dotcom bubble popped. Shiller used the term to describe how asset bubbles are created through animal spirits. In the first edition of *Irrational Exuberance*, published before the dot.com bubble popped, he demonstrated that stock prices in 2000 were many times higher than their historical levels without any significant change in fundamental economic conditions such as household income or GDP. He demonstrated the same thing with respect to housing prices in the second edition, published in 2005, right before the housing bubble popped.

The prices of stocks, houses, and other assets can sometimes rise significantly above the economic fundamentals because of self-reinforcing feedback loops, which he calls naturally occurring Ponzi schemes. According to this theory, we would expect to see (and did see) massive asset inflation, well above fundamentals, high leverage (though that was not unique to the years preceding the crisis), and then massive panic and sell-offs after prices began declining.

Shiller wrote another book after the 2008 financial crisis with fellow Nobel laureate George Akerlof. In their book, *Animal Spirits*, Akerlof and Shiller advocate much of the conventional wisdom. They argue that the financial crisis was the result of animal spirits in a largely unregulated or

deregulated market. They argue that Adam Smith's famous analogy of markets being coordinated by an "invisible hand" is flawed. Though it may explain perfectly informed rational self-interested behavior well, it fails to take account of "non-economic" motivations such as psychology and patterns of social thought.⁶ Blind belief in the invisible hand led to the conclusion among regulators and economists during the housing bubble that:

free market capitalism will be essentially perfect and stable. There is little, if any, need for government interference. On the contrary, the only risk of major depression today, or in the future, comes from government intervention.... But we think that [Adam Smith's] theory fails to describe why there is so much variation in the economy.⁷

Akerlof and Shiller claim that a new macroeconomics incorporating animal spirits can explain "fully and naturally how the U.S. economy, and indeed the world economy, has fallen into the current crisis. And such a theory allows us to understand what needs to be done to extricate ourselves from the crisis."⁸ They recommend a "happy family" model of the economy where the government plays the role of a benevolent parent to restrict the sometimes foolish and irrationally exuberant actions and beliefs of their children, ordinary citizens. They point to five animal spirits that contributed to the bubble in housing prices and the irrational exuberance on Wall Street: Confidence, Fairness, Corruption and Bad Faith, Money Illusion, and Stories.

Some elements of the irrational exuberance story seem compelling. Asset bubbles are a frequent occurrence. People are not primarily utility or cost-benefit calculators. They can make errors of judgment and be influenced by "non-rational" factors when making decisions. Government policy often worsens irrational exuberance, but experimental economists have shown that asset bubbles can form in fairly simple environments without any artificial government signals or distortions.⁹ People form expectations partly through calculation and logic, but also through heuristics or rules of thumb based upon their past experience and their current environment.¹⁰

Broken Markets and Deregulation

The most common and important explanation of the 2008 financial crisis blames a long history of deregulation. Mark Zandi, the chief economist at Moody Analytics, argues that distrust of regulation and belief in self-policing markets led regulators to turn a blind eye to problems in

the housing and financial markets. Deregulation and faith in self-correcting markets contributed to the financial crisis:

Regulators didn't create the subprime financial shock, but they did nothing to prevent it. This was a result of, first, policymakers' distrust of regulation in general and their enduring belief that markets and financial institutions could effectively police themselves; and, second, of the nation's antiquated regulatory framework.¹¹

This antiquated regulatory framework was created by "a new faith that market forces would impose discipline; lenders didn't need regulators telling them what loans to make or not make. Newly designed global capital standards and the credit rating agencies would substitute for the discipline of the regulators."¹² Instead of being constrained by rules regarding what kinds of loans they could make, or how much leverage they could use, mortgage originators followed market signals. Once some firms lowered their lending standards, others did as well in a race to the bottom in search of profit.

Zandi's claim of naturally deteriorating mortgage standards flies in the face of testimony by members of Congress and GSE executives that lending standards would be too high left to themselves.¹³ It's also a little ironic that both the "global capital standards" and the required use of "credit rating agencies," which were protected from competition by law, are considered to be part of market fundamentalism rather than the equivalent of "regulators." Still, it is true that several important rules on financial activity were loosened or removed.

Richard Posner describes the mechanics of the recession in Keynesian terms and argues that the crisis was a natural outcome of capitalism.¹⁴ The primary catalyst for the financial crisis was general financial deregulation beginning in the 1970s and lax regulatory enforcement that allowed large build-ups of fraud in mortgage lending and unhealthy levels of risk and leverage in the banking system.¹⁵ Both problems are the result of "free market ideology" or the belief that markets are self-correcting and self-regulating.¹⁶

The basic premise of Gary Gorton's book, *Slapped by the Invisible Hand*, is that the 2008 financial crisis and related recession were the result of a banking panic that began in 2007. Unlike traditional bank runs where depositors line up to withdraw their money from commercial banks, this was a run on the shadow banking system. Beginning with various deregulations in the 1970s, a great deal of finance moved from traditional commercial banking to shadow banking. This new shadow banking consisted of large institutional investors like pension funds, mutual funds,

money market funds, hedge funds, insurance funds, and investment banks. Just like with traditional banking, the shadow banking system had their own form of demand deposits in the commercial paper and repo markets. But unlike traditional banking, there was no official federal deposit insurance.

So when panic set in due to falling house prices, the uncertainty regarding the risk of various assets, and the possibility of default among counter-parties, large institutional investors began withdrawing hundreds of billions of dollars from the shadow banking system, which instigated margin calls, panic, fire sales, and the collapse of several large financial institutions. Gorton recommends extending historical commercial banking regulations to all financial firms that engage in some form of “banking,”¹⁷ whether they have traditional depositors or not.

Greed, Exploitation, and Manipulation by Wall Street

Michael Lewis provides a great journalistic account of the 2008 financial crisis in *The Big Short*. He has a wealth of interviews with many different figures that highlight the importance of expectations, beliefs, concerns, and motivations in the housing bubble and the financial crisis. His main point is that most people convinced themselves that there was no way a major financial crisis could occur, no way that home prices across the country could decline simultaneously, and no way that their business (whether creating mortgages or mortgage-backed securities) was going to explode. He spends a fair amount of time explaining why the various securities and derivatives based upon mortgages lost so much value so quickly—focusing especially on ignorance and fraud. But while Lewis’ account is rich in details, it lacks breadth and a clear theory of why the crisis happened.

Andrew Sorkin’s book, *Too Big to Fail*, is another masterful journalistic account of how many major players on Wall Street and in government worked to avoid bankruptcy, starting with Lehman Brothers, until the nine biggest banks were forced to agree to take TARP money.

The account contains a wealth of details and anecdotes from first-hand interviews and observations. But Sorkin does not make a clear argument either about what caused the crisis. He does, however, convey the idea that the world would have ended without the deals that were made and the government programs that were created. In this way, his account contributes to the larger conventional wisdom narrative.

Conventional Wisdom Regarding the Events of the Crisis

The conventional wisdom also follows a particular narrative regarding how the events of the 2008 financial crisis unfolded and what should or should not have been done. According to the conventional wisdom, allowing Lehman Brothers to fail was a huge mistake that began the worst financial market turmoil: “Not forestalling a Lehman bankruptcy was a mistake; not everyone was prepared.”¹⁸ Zandi also writes that “The Treasury and the Fed made a grievous mistake; they misjudged the fallout from the Lehman bankruptcy” and “the decision to let Lehman Brothers declare bankruptcy in September 2008 set off a chain of events that brought the [financial] system to the edge.”¹⁹

Another conventional wisdom claim is that financial markets and the economy would have done worse, much worse, without significant intervention and support from the federal government: “Unless government stepped into the breach left by panicked investors, businesses, and consumers, the economic suffering would be much more severe and, ultimately, much costlier to taxpayers.”²⁰ Government intervention was the only option because “with consumers, businesses, bankers, and investors panicked and pulling back, only government has the resources and the will to fill the resulting void.”²¹ The bailouts had to happen or the entire financial system, and the rest of the economy with it, would have collapsed. As President Bush put it at the time: “I’ve abandoned free market principles to save the free market system.”²²

Posner blames the Federal Reserve and the Bush administration, partially for creating the crisis, but more so for failing to respond swiftly and effectively to stop the crisis. The failure of Lehman Brothers was one of the two or three major events creating the crisis. The government “decided to allow Lehman Brothers to slip into bankruptcy – a decision, yet to be explained, that looms as the single biggest blunder to date in the response to the gathering storm.”²³ Posner’s conclusion, like Zandi’s, is that government intervention was entirely necessary and justified, albeit expensive. Many others share this view from Paulson to Bernanke to Gorton to Sorkin. Letting Lehman fail was a huge mistake.

Conclusion

If the conventional wisdom is correct in pointing to deregulation and lack of oversight as the major cause of the 2008 financial crisis, then more regulation and oversight are the obvious solution. The prevalence of the views above justify labeling them as conventional wisdom. The fact that

most policy responses during and after the crisis were designed to address the causes and problems highlighted by the conventional wisdom also demonstrate its popularity and influence. As chapter five laid out, there were many political responses during and after the crisis ranging from bailouts, to new lending programs, to changes in regulations, regulatory agencies, and regulatory requirements. The whole approach followed the idea that government should intervene to fix problems within financial markets.

A large part of President Obama's legislative agenda, and his legacy, was reforming how the financial sector was regulated. But the reforms he had in mind were not about paring down and clarifying rules for financial firms. Instead, the reforms added huge numbers of new rules and restrictions, some carrying criminal penalties, to the lengthy list of regulations that already existed. Main street demanded more restrictions and punishment for Wall Street, and that is what it got.

Dodd-Frank was justified as addressing several important problems and issues in financial markets including conflicts of interest, fraud, speculation, incentives for bankers to take too much risk and for them to act against their customers' best interest. Concern for these issues was not new, but the scale and intensity of regulations under Dodd-Frank had not been seen since the Great Depression.

Another conventional wisdom concern is bankers' incentive to maximize their returns by increasing their leverage. Borrowing huge amounts of money allows banks to earn returns on other people's capital. This magnifies the rate of return to the shareholders who own the bank, which also means more compensation and bonuses for bank executives and traders. At least it does when the bank makes money. But leverage can work in the reverse direction as evidenced by the examples of people's down payments, equity, and leverage in their houses in chapter two. Losses on other people's money magnify the loss experienced by shareholders. High leverage also means that companies are likely to go bankrupt after smaller changes in market conditions than if they had less leverage.

Although leverage can be a problem, most of the proposed regulatory solutions do not involve reducing leverage per se. Instead, they tend to focus on making banks meet stricter capital requirements. Sometimes this will result in decreased leverage as banks hold more capital relative to assets. But other times it simply means that banks will shift what assets they hold in order to meet the requirements, rather than actually decreasing their overall leverage. *The Bankers' New Clothes* argues persuasively that regulators should focus on reducing overall leverage in banks and ignore

most other measures and requirements such as risk-weighted capital rules or stress testing.

Another potential market failure during the crisis can be described as “financial externalities.”²⁴ As bankers were taking greater risks, they weren’t only risking their own money or even their own firm. They were also throwing risk onto their counterparties. Because the financial system is so interconnected, firms don’t fail in isolation. Instead, the failure of one firm can weaken the financial position of other financial firms. In normal times, most firms are strong enough to absorb damage from a bank failure. But in times of crisis, firms are in more precarious financial positions, and multiple firms may fail over a short period of time. This can generate systemic or cascading failure, similar to how one domino knocks down another which knocks down another.

This reasoning, or fear, undergirds the “too big to fail” distinction large Wall Street banks received during the crisis. Paulson, Bernanke, and Geithner all thought the whole financial system could unravel through cascading bankruptcies and fire sales. That is why they brokered a deal for Bear Stearns and tried to broker a deal for Lehman Brothers. It was also the justification for guaranteeing the money market mutual fund industry, bailing out AIG, and even bailing out U. S. auto companies.

Ironically, Dodd-Frank did not attempt to get rid of companies that were too big to fail. Instead, it created a new category: systemically important financial institution (SIFI). Instead of reducing the number of firms that could trigger cascading bankruptcies and the unraveling of the financial system, they chose to identify those firms, impose stricter capital requirements and stress tests on them, and implicitly promise to support them for the sake of the financial system should they get into trouble.

But no one wants these firms to collapse, so Dodd-Frank’s main purpose was to prevent or reduce how much risk wall street bankers can take. All three strands of the conventional wisdom discussed above, irrational exuberance, deregulatory zeal, and greed on Wall Street, think that excessive risk-taking essentially caused the crisis. This took place at the firm level because each firm didn’t account for the external cost to other firms created by their own risk-taking. It also took place at the individual trader level because most people were compensated for short-term success. Furthermore, an implicit government guarantee, the Greenspan Put, that should markets struggle or fail, the Federal Reserve would step in to save the market, created moral hazard.

Critics point to the culture and practices of wall street as an example of the profit motive run amok. If bankers are driven solely, or even primarily, by the possibility of gain through profit, then they will take as much risk

as they can to increase the size and likelihood of their payout. They will also attempt to shift the downside costs onto other parties as much as possible. Leaving the market to work itself out along these principles could only end in catastrophe.

Within firms, individuals had similar perverse incentives to take too much risk. Journalistic accounts and political commentary have made a lot of hay out of the fact that bankers receive enormous bonuses when their risks pay off, but do not pay enormous penalties when their risks blow up. There is a type of asymmetry in the reward structure of Wall Street firms that encouraged greater and greater risk-taking. According to the conventional wisdom, regulations and regulators are the main check on this excessive risk-taking. As soon as the regulations were removed, market participants immediately ramped up their risk-taking and their leverage.

Another problem connected with deregulation was the explosion of fraud in the mortgage industry. When we hear fraud, most of us think about predatory lending where bankers misrepresented the terms of their loans, like the size of their current and future payments and the borrower's ability to refinance at a later date, to unsuspecting borrowers. But there were other more widespread and important forms of fraud occurring in the 2000s. Many people received mortgages under false pretenses. In fact, a much larger percentage of fraud in the early 2000s came from borrowers misrepresenting or lying outright about their income and assets.

Beyond fraud in the process of creating mortgages, the whole pipeline of mortgage finance was riddled with fraud, deception, and ignorance. Loan officers signed off on the origination paperwork. Mortgage companies signed off on the quality of mortgages sold to Fannie, Freddie, and other aggregators. Those aggregators then signed off on the mortgage derivatives they marketed throughout the financial system. Credit rating agencies then signed off on the derivatives too. At each stage, people signed off on "high quality" mortgages that were in fact low quality, fraudulent, and extremely risky.

The result of conventional wisdom thinking on all these topics is our current regulatory framework after Dodd-Frank. Policy makers decided to curb the raw profit motive *and* market discipline through new regulations. Better to have regulators rule in the public interest than to allow private firms to maximize their profits through excessive risk-taking, fraud, and negative externalities. People believe regulators will have a more comprehensive and balanced view of the entire financial system. They also have incentives to act in the interest of the entire market, not just for the benefit of a few firms, or so the reasoning goes. Government agencies do not make more money by leveraging themselves to the hilt. Given their

views that the crisis was a natural outgrowth of the market, advocates of the conventional wisdom have held up the “rule of regulators” as the best way to move forward and to prevent a recurrence of the 2008 financial crisis.

Notes

¹ See, for example, Posner (2009), Zandi (2008), Gorton (2010), Akerlof & Shiller (2010), or Lewis (2011).

² See Posner (2009), Zandi (2008), Sorkin (2010), or Paulson (2010).

³ See endnote i.

⁴ Barofsky (2012), *Bailout*.

⁵ See endnote i.

⁶ Akerlof & Shiller (2010), *Animal Spirits* pg. 3.

⁷ Ibid, pg. 2-3.

⁸ Ibid, pg. 6-7.

⁹ Smith et al. (1988, 2001).

¹⁰ Mueller (2014), “An Austrian View of Expectations and Business Cycles”.

¹¹ Zandi (2008), *Financial Shock* pg. 159.

¹² Ibid, pg. 4.

¹³ Wallison (2016), *Hidden in Plain Sight* Chapter 5, especially pg. 140.

¹⁴ Posner (2009), *A Failure of Capitalism*.

¹⁵ Ibid, pgs. xii, 113, 115, 130.

¹⁶ Ibid, pgs. 259-260.

¹⁷ Gorton (2010), *Slapped by the Invisible Hand* pg. 17.

¹⁸ Zandi (2008), *Financial Shock* pg. 28.

¹⁹ Ibid, pgs. 213, 193.

²⁰ Ibid, pg. 195.

²¹ Ibid, pg. 254.

²² Interview with CNN in December 2008.

²³ Posner (2009), *A Failure of Capitalism*.

²⁴ Admati & Hellwig (2014), *The Bankers’ New Clothes*; Also, see John Cochrane’s contribution “Toward a Run-free Financial System” which is chapter ten of *Across the Great Divide* ed. Bailey (2014).

CHAPTER SEVEN

DISSENTING VIEWS

A wide range of books and articles dissent from the conventional wisdom. The dissenters claim that government policy and government agencies were responsible for causing the 2008 financial crisis including: The Federal Reserve, the Government-Sponsored Enterprises and Community Reinvestment Act, capital requirements and mark to market accounting, the credit rating agencies, and moral hazard. Different authors put varying weights on each of these explanations:

- Artificially low interest rates promulgated by the Federal Reserve after the dot com bubble fueled the housing bubble;
- Congress and regulators required that banks and GSE's originate and purchase increasing numbers of subprime and Alt-A mortgages. Pressure from the Department of Housing and Urban Development to meet those quotas pushed lenders to reduce their underwriting standards;
- Regulatory capital requirements encouraged banks to shift from holding whole mortgages to holding mortgage-backed securities. Mark to market rules contributed to debt deflation and created significant paper losses;
- Credit rating agencies flooded the market with inaccurate ratings which led directly to widespread investment errors. These agencies had conflicts of interest, they were sanctioned and protected from competition by law, their services were legally required for corporations issuing equity or debt, and their ratings determined whether pension and insurance funds could invest in a security as well as how much capital banks had to hold;
- Banks were encouraged to take more risk because they believed they would not pay the full cost if things went badly. Federal deposit insurance encouraged depositors to care only about the interest rates banks offered, not the riskiness of the banks' loans—giving an advantage to banks that took greater risk and offered slightly higher interest rates. Federal regulators also demonstrated an

unwillingness to let bank creditors lose money, even if the bank failed, for decades before the 2008 crisis;

Those who dissent from the conventional wisdom about the causes of the crisis also dissent from the conventional wisdom of how the 2008 crisis unfolded, what role the government played and should have played in the crisis, and what kinds of solutions will be most effective in preventing future crises. Jeffrey Friedman and Wladimir Kraus' book, *Engineering the Financial Crisis: System Risk and the Failure of Regulation*, synthesizes and criticizes the conventional wisdom of what caused the crisis.

Friedman and Kraus describe "six elements of conventional wisdom about the causes of the financial crisis." Some are right-of-center and others are left-of-center explanations. Friedman and Kraus criticize four explanations on the left:

1. Deregulation led to an explosion of subprime lending and securitization that was then leveraged through the shadow banking industry;
2. Compensation and bonus structures encouraged reckless risk-taking by banks;
3. Moral hazard fueled risk-taking since bankers were gambling with other people's money;
4. Irrational exuberance fueled the housing bubble and the financial bubble.

In response to the deregulation story, Friedman and Kraus point out several problems. First, it was simply not the case that the shadow banking system was unregulated. The mortgage originators like Countrywide and Indymac had regulators, the large investment banks had regulators, AIG had regulators, and so on. Most of the deregulation in the late 1990s and the early 2000s focused on commercial banking. An important variation on the theme of deregulation is that certain parts of the shadow banking system were able to prevent increased regulation of their activities—particularly with regard to how derivative contracts were made. But Friedman and Kraus, among others, point out that derivative contracts, especially credit default swaps, were tangential to the crisis, not its cause.

Another problem with pointing to deregulation as the culprit with regard to subprime lending is that there is very little deregulation to be found. Few lending rules changed except in the direction of regulators encouraging *more* subprime and Alt-A lending, not less. It is fairly clear

that a large subset of subprime and Alt-A loans defaulted and created most of the problems in housing markets, MBS markets, and financial markets generally. But there is no deregulation behind the increase in subprime loans during the housing boom. This whole story simply fails to carry any weight.

Journalistic accounts of the crisis are full of stories about the excessive bonuses and risk-taking on Wall Street. They describe the incredible pressure and rewards for generating large profits as quickly as possible. In this world, bankers care relatively little about long-term risk or even long-term profitability because their main compensation is based on short-term gains. Banks as institutions also take excessive risks because of moral hazard; that is, because they believed that the government, in one way or another, would bailout them out or prevent their losses from becoming too great if catastrophe struck financial markets.

Although there is certainly some truth in these accounts, they are an extremely weak explanation of the crisis itself. The problems of compensation focusing more on short-term results than long-term results are not new. Bank executives and board members have developed a variety of strategies to deal with these problems over the years. For example, most bankers have a substantial portion of their compensation tied up in company stock or stock options. That compensation is only valuable if the company is around and doing well at some point in the future. This means that a lot of high-level Wall Street executives lost a huge amount of money as their company valuations plummeted.

There is no doubt that folks on Wall Street were hoping for help from Washington when things went bad. But despite government intervention and subsidies, most people on Wall Street lost jobs and/or money. The top executive at Bear Stearns, for example, lost hundreds of millions of dollars, over 90% of his net worth, when the company failed. Many other bankers lost their jobs, saw the value of their stock and stock options decline precipitously, and otherwise suffered financial loss due to the poor performance of their institutions.

Friedman and Kraus criticize animal spirits explanations for confusing knowledge problems with irrationality. As the authors point out, animals “do not tell stories, notice ambiguity, or believe in fairness, faith, or wealth.” These are ideas that people have. The “irrational exuberance” discussed by Shiller is really a story about people having incomplete, or sometimes wrong, information about the world. It also involves people interpreting the data and information they do have incorrectly. This is not irrational, it is simply mistaken. The ways that people filter information and form expectations can feed self-reinforcing asset bubbles because

everywhere they turn (family and friends, news, recent experience) they see the same message: houses are a good investment because housing prices rise so rapidly.¹

The two “conventional wisdom” explanations on the right downplayed by Friedman and Kraus are first, that artificially low interest rates due to Fed policy fueled the housing bubble, and second, that Fannie and Freddie fueled the housing bubble by lowering their lending standards. Many commentators claim that the decline in lending standards was also responsible for the dramatic unexpected jump in default rates in 2007 and 2008.² While Friedman and Kraus offer some important challenges and nuances to politically “right” explanations, I am not convinced we can discount these explanations as much as they say. In fact, a couple of the explanations make up important parts of others’ dissenting views.

Housing Policy

Entire books have been written simply on the role of housing policy in creating the 2008 financial crisis.³ There is a great deal of history about how mortgage lending developed, the rules it is subject to, and how it led to a massive housing bubble from 2001 to 2006. This section only highlights some of the most important developments in housing policy in the thirty years leading up to the crisis, particularly with respect to regulatory changes, and gives a sense of the shift in quantity and quality of mortgages being issued and securitized during the housing bubble.

The federal government began involving itself in housing policy pretty dramatically during and after the Great Depression. It created new types and standards of mortgages, such as the thirty-year, fixed rate mortgage, through its new housing agencies. These agencies would also insure mortgages. Some of these agencies would issue mortgages to various subsets of the population, such as veterans. They were also involved in crafting housing policy, working with credit rating agencies, and creating zoning and redlining policies.

One of the major tenets of banking regulation during the depression was the Glass-Steagall rule, named after Senator Carter Glass and Congressman Henry Steagall. The goal was to limit how much risk banks could take with depositors’ money. The Federal Deposit Insurance Corporation (FDIC) was also created in the 1930s. The FDIC was responsible for reimbursing depositors, up to a certain amount, should their bank fail. Depositors were happy about this because they had a guarantee that their money was safe even if their bank shut down. Banks

liked this too because their depositors had explicit backing should the bank fail.

Obviously, banks don't aim to fail, but the potential downside of their failure was significantly reduced through deposit insurance. Congress realized that they were creating moral hazard by agreeing to pay off depositors if the bank was unable to do so. This would encourage banks to make bigger bets and take bigger risks with their depositors' money. The Glass-Steagall rule attempted to mitigate that moral hazard by restricting banking activity. Glass-Steagall prohibited banks from using depositors' money in proprietary (i. e. risky) trading. Banks that took deposits were also excluded from other types of banking including initial public offerings as well as brokerage and trading services. Although there was some ambiguity around the scope of the rule, the basic idea was that deposit, or commercial, banks should avoid dealing in most securities like stocks, bonds, and derivatives.

By preventing commercial banks from engaging in proprietary trading and dealing securities, the Glass-Steagall rules created the investment banking industry separate from the commercial banking industry—something uniquely American. In other countries, commercial banking and investment banking are combined in the same companies. By the 1990s, commercial banks were beginning to exploit loopholes and exceptions in Glass-Steagall. In particular, they argued that they could use a bank holding company to hold both a commercial bank and an investment bank. Although the law was somewhat ambiguous, the main bank regulator, the Federal Reserve, signed off on this practice. By the end of the 1990s, commercial banks became even more aggressive in challenging the Glass-Steagall rule as obsolete and anti-competitive. Citibank, in particular wanted to move more aggressively into investment banking practices.

Glass-Steagall was meant to protect commercial banks from losing their depositors' money in risky investments. But during the crisis, the stand alone investment banks were the first to implode, not commercial banks with investment bank arms. The commercial banking side of the business stabilized the investment banking side. The former CEO of a large regional bank described the crisis as primarily centered on highly leveraged investment banks and a few commercial banks like Citi that were basically structured as giant investment banks on top of their commercial bank operations.

Mortgages were first securitized in the 1970s through Fannie Mae and Freddie Mac. But this was not a large market, or a very profitable one, until more financial innovation occurred in the late 1980s. "Structured finance" led to the tranching of MBS to create AAA and AA rated bond

instruments. Then the development of CDO tranching to create yet more AAA and AA rated bond instruments followed, kicking off the explosion in mortgage derivative markets and by extension regular mortgage markets.

Then in the 1990s, Congress and regulators pressured Fannie Mae and Freddie Mac to lower their lending standards significantly. Remember, normal prime mortgages did fine throughout the entire financial crisis and economic recession. Their foreclosure rates were low and remained low over this period. Default rates for subprime mortgages increased four-fold during the crisis. But the default rate for Alt-A loans increased by a factor of sixteen, which contributed to the hundreds of billions of dollars of losses in MBS and CDOs.

The primary forces pushing for lower lending standards include the Department of Housing and Urban Development enforcing revisions to the Community Reinvestment Act and legislation by Congress setting higher and higher targets for the number of loans to “underserved” communities and individuals purchased by Fannie Mae and Freddie Mac. These loans were entirely subprime or Alt-A because of the lower credit scores and lower incomes of the borrowers. Banks didn’t have to be pressured to make safe loans. They were happy to do that. No, banks and the GSEs had to be pushed to *lower* their lending standards. This fact undermines the whole deregulatory market failure story that more regulation is the only way to maintain high lending standards.

Another important factor involved some states creating non-recourse rules that increased the riskiness of mortgages because borrowers could simply walk away from their house and mortgage if they found themselves underwater without any other financial repercussions. This law allowed millions of people to engage in “strategic defaults” on their mortgages. They decided to stop paying their mortgage, not because they didn’t have enough money, but because they didn’t think honoring their debt was worthwhile.

Also operating in the background is what a number of authors call “free market fundamentalism” among regulators. During the George W. Bush administration, the leaders of mortgage regulators from the Office of Thrift Supervision to the Securities and Exchange Commission to the Comptroller of the Currency to the Federal Reserve thought that markets were self-regulating and that their job was to not interfere. I agree with the critics that many of these regulators acted badly (or didn’t act as they should have), but not with their explanation of why the regulators acted this way, nor with the size of the effects of regulators’ mistakes.

Competition and market discipline are the best way to prevent abusive practices by firms. Free markets tend to self-regulate and there are many examples in the world around us and from history. But markets require a clear and robust rule of law in order to operate well. Regulators choosing not to enforce the law because they thought the free market would regulate itself, even in a vacuum, contributed to the crisis and provided fodder for those who blamed the crisis on market excess. Their unwillingness to get involved, even in widespread cases of fraud, undermined the rule of law itself. Furthermore, the housing market, the mortgage derivative market, and the financial market were not particularly good examples of free markets to begin with. Yes, they certainly had some freedoms, but they were also riddled with regulations and mandates that rewarded them for behaving in certain ways—ways that they would not normally have behaved. And they had also been insulated from full competition due to legal barriers to entry.

Regulators failed to enforce the rule of law surrounding fraud, disclosures, etc. And their assumption that free competition would check abusive practices ignored the widespread distortions and perverted incentives that had built up within all the sectors related to the financial crisis. This was particularly true on Wall Street where the federal government had made a practice of bailing out creditors again and again and again beginning with Continental Illinois in 1984. The 1980s saw the collapse of the savings and loans industry. So many S&Ls failed that their regulator, the Federal Savings and Loan Insurance Corporation, the counterpart to the FDIC, ran out of money. Cleaning up the mess cost taxpayers over a hundred billion dollars. Continental Illinois was one of the largest firms and one of the first to be rescued. In the 1990s, the Fed would also orchestrate the rescue of a hedge fund, Long Term Capital Management.

Artificially Low Interest Rates

The Federal Reserve's interest rate policy before and during the housing bubble is one of the most controversial topics related to the 2008 financial crisis and the general health of the economy. There are a couple issues to parse in order to understand how to assess interest rate policy and its relationship with the crisis. First, how can we determine that interest rates were “too low” for too long? Second, what is the connection between low interest rates, the housing bubble, and economic growth and contractions?

The leading advocate blaming Fed interest rate policy for fueling the crisis is Stanford economist John Taylor. Professor Taylor has studied and written about the Fed for decades. His work and ideas usually have a seat at the table in Fed deliberations on monetary policy. One of Taylor's contribution to our understanding of monetary policy is a relatively simple equation he developed that described monetary policy quite well from the late 1980s through 2000. This period, known as the Great Moderation, saw high economic growth and high employment without a significant financial crisis or recession.

His equation was dubbed “the Taylor Rule.” Although initially descriptive, many economists from a variety of backgrounds accepted the Taylor Rule as a prescriptive guide to how the Federal Reserve should manage interest rates in light of fluctuations in the economy. The basic tenets of the Taylor Rule are that the Fed should set interest rate targets in light of four factors: what they believe the real interest rate in the economy to be (natural interest rate), the actual inflation rate, the difference between their targeted inflation rate and the actual inflation rate (inflation gap), and the difference between their targeted real GDP growth and actual GDP growth (output gap):

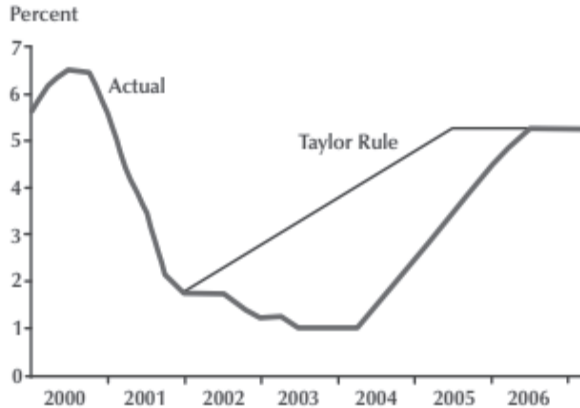
$$\text{Target Fed Funds Rate} = \text{Natural Rate of Interest} + \text{Inflation} + \frac{1}{2} * \text{Inflation Gap} + \frac{1}{2} * \text{Output Gap}$$

For example, if the actual inflation rate is higher than their target rate, the rule says that they should raise their interest rate target to offset the inflationary tendencies in the economy. The same would be true if real GDP growth were higher than their target. But if inflation or real GDP growth are lower than their targets, the Fed should lower its target interest rate. Note that inflation has a heavier weighting than output in the Taylor Rule. A 1% change in the inflation rate calls for a 1.5% change in the FFR. Without boring you with more details and discussions around this rule and policy, suffice it to say that one of its primary benefits is that it generates a clear theoretical benchmark against which to compare the Fed's target federal funds rate.

While the Taylor rule described monetary policy in the 1990s very well, after 2001 the Federal Reserve broke with the Taylor Rule. They lowered their interest rate target below the rate suggested by the rule. They also did not begin raising that artificially low rate when the Taylor rule suggested that the target rate should begin to rise. Figure 7.1 maps what the FFR target should have been if the Fed had followed the Taylor Rule.

The graph gives us a clear metric by which we can say that interest rates were too low for too long.

Figure 7.1: Actual Federal Funds Rate vs. Taylor Rule



Note: From Taylor (2007).

Now we need to move on to the harder question of how deviations from the Taylor rule into artificially low interest rates affected housing and the economy. The most developed theory explaining the connection comes from the Austrian school of economics and is called Austrian Business Cycle Theory (ABCT). The Austrian theory about business cycles of boom and bust starts with an artificial expansion of credit by a government or central bank. The increased supply of credit lowers the rate of interest from what it otherwise would have been. This can be obvious expansionary policy in which the Fed explicitly lowers its target rate. But it can also include accommodative policy where the target should have increased given certain changes in the economy, but the central bank holds its FFR target constant.

In order to target lower interest rates, the Fed has to provide more bank reserves, or credit, to banks. As individuals see the interest rate on their savings fall, they shift more of their income towards consumption and away from savings. On the other hand, entrepreneurs and investors who see lower rates of interest will tend to borrow more and will undertake more projects with a longer time horizon since it has become less costly to borrow. The greater quantity of credit means more projects can be started. But since it is artificial credit, rather than an increase in real savings, the

economy cannot sustain the increased number of projects given current levels of resources, technology, and capital.

Entrepreneurs don't realize that many of their projects are unsustainable due to the external effects of everyone else's actions. So, they go ahead and hire labor and resources for these new projects. More employment of labor and resources increases production, which increases economic growth beyond sustainable levels. Austrian economists call this the "boom."

As businesses compete for resources, however, the prices of resources increase, causing businesses to incur losses and sometimes fail altogether. As losses mount, businesses cut back on investment and production which leads to less labor and resources being employed. The rate of economic growth, which had increased when entrepreneurs and investors increased their borrowing and began more projects, falls below its long-run trend as the market corrects errors and re-allocates resources—resulting in a recession or "bust."

Austrian stories of the 2008 financial crisis generally point to government actors as the culprits. They emphasize how free markets have equilibrating and corrective mechanisms that prevent systemic error. It is only when governments distort the rules or put their thumb on the scale that you get a significant boom-bust cycle. One simple but clear exposition of the crisis in light of ABCT is the primer "The House that Uncle Sam Built."⁴ The primer highlights the credit expansion fueled by the Federal Reserve since 2001, the unintended consequences of various government housing programs and rules that distorted market signals, and how the bubble in housing formed. The authors go on to argue that the interventions of the treasury and the Federal Reserve under TARP made matters worse by introducing huge amounts of uncertainty to an already precarious situation.

Unfortunately, although the theoretical Taylor Rule is clear, there can be disagreement over the underlying natural rate of interest, what the inflation target should be, and what the output target should be. Still, many economists, including John Taylor, argue that the Fed lowered its target below the rule in 2002. Dropping the target rate below the rule generated artificial credit expansion. Most of the excess liquidity created by Fed monetary policy was then channeled through financial credit markets into mortgages, fueling a bubble in housing markets. Fearing a bubble, the Fed increased its target interest rate rapidly in 2005. By late 2006 housing prices plateaued. In 2007 the housing bubble burst, defaults began to rise, and investors in financial markets started worrying. Uncertainty combined with financial leverage led to fire sales, devaluations, margin calls, and

ultimately declines in home prices, increases in mortgage default rates, and declines in financial markets more broadly. This is the correction side of the Austrian Business Cycle. During the boom with artificially low interest rates, there was too much investment in housing. Once the market realized that was the case, it naturally began shifting resources away from houses and towards more profitable sectors of the economy. But that process created economic dislocation and losses in housing-related industries.

After bad credit signals, too much investment in houses, and an artificial boom of production and employment, the recession begins a revaluation of assets, a reallocation of resources, and a readjustment of productive processes in the economy. Austrians argue that these plans need to be readjusted because they were built on illusory money and credit—they were unsustainable. Besides corporate and business re-evaluations, individuals had to repair their personal balance sheets after the crisis too.

The story of too much investment in houses relative to the rest of the economy is fine as far as it goes, but was it really just too much wood, steel, and labor being invested building houses that caused a major global contraction? The financial side of things described in chapter two took a life of its own and magnified the effects of the cycle many times over through high leverage in short-term debt markets as well as the creation of massive liabilities through credit default swaps.

Tracing the connection between artificially low interest rate targets and the housing market requires some nuance. By way of reminder, the Federal Reserve targets something called the overnight federal funds rate (FFR). This is the rate at which banks lend excess bank reserves to one another overnight. The Fed affects the rate by increasing or decreasing the supply of bank reserves through open market operations. They buy or sell treasury bonds in exchange for new bank reserves. But the FFR is only one of many different interest rates in the economy. The amount of risk involved, and the duration of the loan, are two critical elements that affect the supply and demand of loanable funds and thereby the price, or interest rate, at which money is borrowed and lent.

Interest rates of varying maturities and risk tend to be connected because they are substitutes. If the FFR goes up, borrowing short-term becomes relatively more expensive compared to medium-term and long-term borrowing. That increases the demand for medium and long-term borrowing, which then drives those rates up too. However, one of the difficulties or puzzles in debt markets is the fact that although these interest rates are connected and related, they do not move in lockstep. Sometimes a small change in a short-term rate can lead to a large change

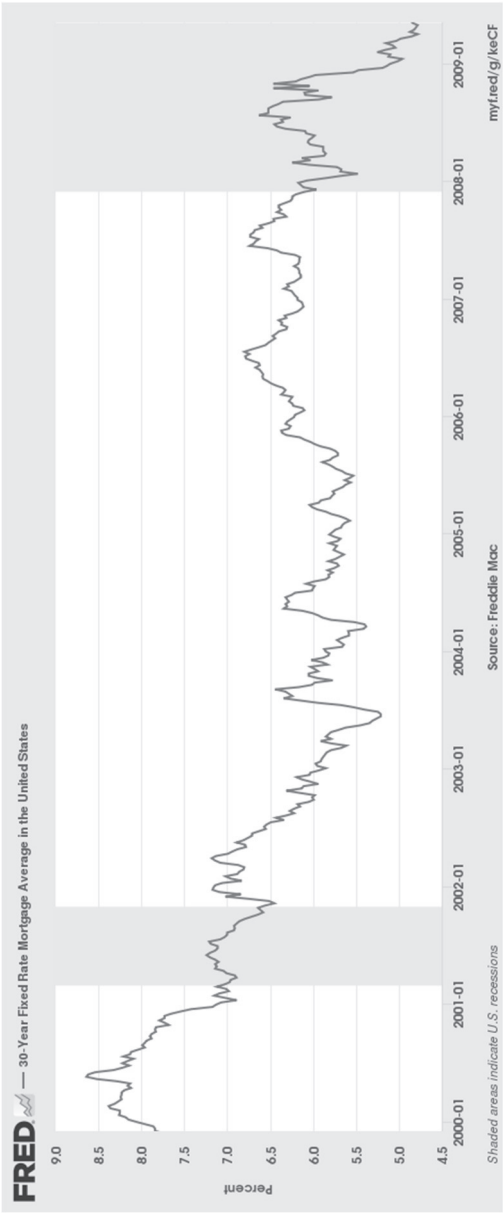
in a long-term rate, or vice versa. And sometimes they can even move in opposite directions.

There is no single reason for this. Expectations, risk, inflation, and available substitutes can all affect how closely interest rates track each other. Still, in general, a decrease in short-term rates will lead to a general decrease in longer-term rates—which brings us back to considering the effects of the artificially low FFR in the early 2000s. It is tempting to simply say that the lower rates made it cheaper to borrow money through lower mortgage rates, which in turn fueled more demand for houses and higher prices for houses. But this is only partially correct. If you look at the 30-year fixed rate mortgage (Figure 7.2), you can see that it did not drop nearly as much as the FFR did, nor did it rise nearly as much as the FFR did from 2004 to 2006. This seems to undercut the idea that artificially low rates made it cheaper to borrow money and the idea that the rapidly rising FFR “popped” the housing bubble.

Another important factor behind the crisis was the fact that an increasing number of new mortgages were not fixed rate. Instead, they were adjustable rate and would reset relative to various indices such as the London Interbank Overnight Rate (LIBOR) or the rate on one-year treasury bills. From March 2004 to March 2006, both of these rates quadrupled. Borrowers with ARMs resetting over this period would have seen substantial increases in their monthly payments.

But many loans that defaulted right before and during the crisis were not necessarily ARMs that had reset and become too expensive. Approximately 40% of all mortgage defaults came from two states: California and Florida. Over half of the mortgage defaults occurred in the handful of states that had non-recourse laws, which meant mortgages were only secured by the property and lenders were not allowed to go after a person’s income or other assets if they stopped paying their mortgage.⁵ And most of the people who walked away from their houses and mortgages in these states did so, not because their payments increased, but because the value of the house had dropped significantly below the value of their mortgage, putting them underwater, and they would rather walk away even though they could afford to keep paying the mortgage. This is a significant point made by Bahnsen. The crisis was not driven by poor people being defrauded and unable to pay their mortgages. Instead, it was the millions of somewhat affluent to very affluent people who strategically defaulted on their Alt-A mortgages.

Figure 7.2: Thirty Year Fixed Rate Mortgage⁶



The connection, then, between changing FFR and changing mortgage rates is complicated. Certainly, mortgage rates fell noticeably as the FFR fell in the early 2000s. They also rose some in 2005. And that increase in rates coupled with high housing prices reduced people's effective demand enough for house prices to plateau for about a year. Declining housing prices in 2007, along with repeated unexpected upticks in default and foreclosure rates created a downward spiral in housing, mortgage, and mortgage-backed derivative markets.

It seems that we can't place too much blame on artificially-low interest rates unless we also consider the connection between a low FFR rate and the cost of banks raising more funds as well as changing the relative attractiveness of certain investments. With extremely low short-term rates in bond markets, investors of all stripes began searching for higher returns wherever they could find them. Many of these institutional investors like insurance and pension funds have significant regulatory limitations on what they are allowed to invest in. This is the background that makes AAA MBS and CDOs so attractive. Trillions of dollars were funneled from investors to mortgage borrowers through the mortgage derivative market; and a big part of the incentive to do so was the extremely low returns in short-term bond markets driven by the low FFR target in the early 2000s.

Misregulation

The most important and compelling dissenting explanation of what caused the crisis is that of misregulation. It is the polar opposite of the deregulation argument. Far from saying that reducing regulations created the crisis, advocates of the misregulation thesis claim that the existence of bad regulations were the primary cause. Friedman & Kraus present the most comprehensive and nuanced version of this theory in their book *Engineering the Financial Crisis*. They argue that misregulation involved a whole web of regulations interacting with each other in unanticipated ways that created the "perfect storm" in mortgage and financial markets.

The most important misregulations, in their view, were regarding risk-weighted capital requirements. The prevailing view of bank regulation around the world from the 1990s into the 2000s was that banks should hold a certain amount of capital relative to their investments as a buffer to protect depositors and government insurance agencies in case some of the bank's investments defaulted. By the way, this is still the belief of regulators today. But how much capital should they be required to hold? And perhaps more importantly, should they be required to hold the same

amount of capital against all investments or should it vary by the riskiness or quality of a firm's investments?

The Bank of International Settlements brought regulators from around the world together in 1988 to create international standards for how much capital banks ought to hold. The standards they settled upon were called the Basel Accords and were supposed to apply to all banks around the world. Basel I refers to the set of standards created in 1988. Basel II refers to an updated set of standards from 2006. And for some reason, banking regulators from around the world decided that they needed to update their standards again after the 2008 financial crisis in a futile effort to deal with any and every complication and unintended consequence created by the previous sets of rules. This newest set of rules is known as Basel III. The Basel Accords have become increasingly complex, moving from fewer than one hundred pages of rules in Basel I to many thousands of pages of rules in Basel III.

Countries implemented the Basel rules at their own pace and with their own idiosyncrasies. The Basel accords created “risk-weighted” capital criteria—meaning that Basel I, II, & III determined which investments were riskier and which ones were safer as well as how much capital banks had to hold against these investments. Banks had to hold more capital against riskier investments and less capital against less risky investments. In 2001, several U. S. regulatory agencies including the Federal Reserve, the Comptroller of the Currency, and the FDIC agreed to an amendment to Basel I called the Recourse Rule.

The new rule allowed banks to hold less capital against MBS and sovereign debt than against regular mortgages or commercial loans. The rules stipulated that while “a well-capitalized commercial bank needed to devote \$10 of capital to \$100 worth of commercial loans or corporate bonds, or \$5 to \$100 worth of mortgages, it needed to spend only \$2 of capital on a mortgage-backed security (MBS) worth \$100.”⁷ Banks did not need to hold any capital against investments in sovereign debt (national governments' debt).

This new rule made mortgage-backed securities more attractive than other investments. Instead of holding \$50,000 of capital against a million dollars of mortgages, banks could sell those mortgages to Fannie or Freddie and buy a million dollars of AA or AAA MBS. Because those assets were considered safer, banks only had to hold \$20,000 of capital instead of \$50,000. It's no coincidence that the Recourse Rule was implemented near the beginning of the housing bubble. It encouraged banks to engage in capital arbitrage—that is, banks shifted their

investments from commercial loans and whole mortgages to mortgage-backed securities to reduce how much capital they had to hold.

The increase of commercial banks' holdings of MBS became a problem after the housing bubble popped and mortgage defaults began to rise, causing the market value of the MBS to fall significantly. Banks' paper losses reduced their profitability, which cut into their ability to issue new loans. But equally important was the fact that most of these MBS were also downgraded below AA. The Recourse Rule had allowed banks to hold less capital against MBS with high credit ratings. MBS with lower credit ratings had to be backed by more capital. During the crisis, this meant that in addition to paper losses and reduced profitability, the amount of capital banks had to hold against their MBS jumped precipitously which also reduced their ability to lend and contributed to the overall credit crunch experienced in late 2008 and early 2009.

Another element of misregulation, described in earlier chapters, was that of the credit rating agencies: "1975 amendment to the SEC's Net Capital Rule...[turned] the three existing companies-S&P, Moody's, and Fitch—into a legally protected monopoly."⁸ Even folks at the SEC at that time didn't seem to fully understand the implications of the new rule—namely, that they were effectively insulating the firms from competition and thereby laying the groundwork for lax or sloppy credit ratings in light of increasing financial sophistication and the development of new kinds of asset classes such as structured MBS, CDOs, etc. This ignorance can be seen at work in other government agencies and regulatory rules that placed tremendous importance on the ratings given by these agencies. The ratings affected whether certain major institutional investors were allowed to hold certain assets as well as how much capital banks had to hold against these assets.

There were problems with how much knowledge these agencies had to work with as well as incentive misalignment. They did not have strong incentives to investigate the information they received from originators of MBS and CDOs. Credit rating agencies were not alone in having bad information. Most everyone in the market was unaware of how many low-quality Alt-A loans had been issued.⁹

From a theoretical perspective, misregulation creates negative effects in markets. Part of this comes through perverse incentives that encourage market actors to make unproductive, or even destructive, investments. But another problem is that misregulation creates fragility. Risk-weighted capital requirements, for example, encourage all regulated firms to begin acting in the same way. Instead of banks choosing a variety of risks and

maturities in the assets they hold, they are strongly encouraged to make similar investment choices.

When banks follow a variety of investment strategies, problems in any one type of asset class or loan market will affect them differently. Banks with higher exposure will have difficulty staying afloat. But there will be many other banks with relatively little exposure to the troubled asset class and so can carry on business as usual. But with the application of regulation rewarding banks for making the same investment choices, those problems then affect all the institutions in the industry simultaneously—meaning almost no banks can carry on business as usual. Of course, regulators don't intend to make the industry more fragile; but that is exactly what happens if, or more properly when, regulators have faulty estimates of how risky particular assets can be under a wide variety of market conditions. By encouraging all commercial banks to behave in a similar manner, the Fed's Recourse Rule created systemic risk. If shifting to holding MBS instead of whole mortgages turned out to be a bad idea, which it did, then all the banks were caught in the same bad idea at the same time.

Misregulation of capital requirements also changed the structure of markets by massively increasing demand for MBS. Besides rewarding banks for holding particular assets, the regulations encouraged financial markets to create more of that asset. The rapid increase in demand for MBS led to a rapid increase in the demand for mortgages, thereby increasing the price of mortgages on the secondary market and funneling huge amounts of funding into the primary mortgage market. The rapid growth in this market led to rapid growth in the number and size of companies specializing in issuing mortgages.

Not surprisingly, the number of loan origination companies proliferated as the housing market heated up. The demand for MBS, and therefore for mortgages, by banks and other investors seemed insatiable during the boom. Loan origination companies were able to sell newly issued mortgage contracts to one of the GSEs or Wall Street practically before the ink had dried!

That boom went hand in hand with decreasing mortgage quality, increasing fraud, and increasing ignorance of the underlying fundamentals behind these assets. But once the housing market began to slow and then decline, mortgage origination companies failed in droves. Their entire business model was built on issuing and selling mortgages. Once the demand for MBS and mortgages dried up, they were left with large numbers of low-quality mortgages and huge debts they had acquired to

finance their operations. The failures of these companies were concentrated in California and the other sand states.

Friedman and Kraus also argue that mark to market accounting contributed significantly to the crisis—a point made by John Allison, Richard Kovacevich, and Gary Gorton, too. As noted earlier, mark to market accounting created massive paper losses that exaggerated the extent of real defaults and losses on mortgages and mortgage-related derivatives. In the midst of liquidity and capital freezes, these paper losses forced large banks to cut back even more on their lending to businesses throughout the country. Friedman and Kraus claim that this decline in direct lending transferred the crisis from Wall Street to Main Street. It converted the losses on financial institutions' balance sheets into job losses and economic contraction.

Although that connection may seem intuitive, it contrasts starkly with the previous financial turmoil of 2001. The dot-com crash saw huge declines in the value of stocks and investors' portfolios, but that led to a pretty minor and short-lived recession followed by a strong recovery. The main difference between 2001 and 2008 was that the dot-com bubble did not create huge losses on bank balance sheets and so banks were not forced to contract their lending significantly.

There is a long history of regulating the financial system in the U. S. Regulators are always fighting last year's battles and are severely restricted by their ignorance, particularly their ignorance of how multiple regulations will interact with each other. Besides the complexity involved, there are also important incentives that lead regulators to act cyclically and thereby exacerbate booms and busts in the economy. When companies and industries are doing well, all their financial indicators look good and they seem to be fairly safe. So, regulators tend to be more lax in scrutinizing balance sheets and capital cushions. When times are bad, though, especially after a large shock or crisis, regulators scrutinize every detail and enforce regulations far more strictly. That, in turn, makes it more difficult and costlier to do business, thereby slowing down economic recovery.

Moral Hazard

Another element of the dissenters' story is the role of moral hazard. In addition to numerous scholars, the CEOs of two large banks argued that financial institutions were encouraged to take on too much risk by various government agencies, programs, and past policies. For example, John Allison explains how federal deposit insurance has made individuals

apathetic to the financial health of their bank because the federal government promised to protect their money even if the bank failed. Instead, depositors look for the highest interest rate on deposits, which are sometimes offered by extremely aggressive (i. e. risky) banks such as Countrywide, Indymac, and Wachovia. These aggressive banks grow rapidly and lure away deposits from more conservative banks because they do not bear the full consequences of their risk-taking. Unsurprisingly, these were the banks that went down in flames in 2008.

Past government interventions have given lenders, especially lenders to large financial institutions, less reason to worry about catastrophe in the future. We've already seen how the Greenspan Put set the expectation that government officials would never let markets crash too far. But public officials also had a history of rescuing creditors who had lent money to banks. Beginning with Continental Illinois in 1984 and continuing through the savings and loans crisis in the late 1980s, government regulators have almost never allowed bank creditors to lose money. In the late 1990s, Greenspan was involved in organizing a rescue of the creditors of a large hedge fund, Long Term Capital Management, which was not even a bank.

Interpretation of the 2008 Financial Crisis Mechanics

John Taylor wrote an excellent little book analyzing the mechanics of the 2008 crisis called *Getting Off Track*. His basic thesis is that "government actions and interventions caused, prolonged, and worsened the financial crisis."¹⁰ Besides pointing out how loose expansionary monetary policy in the United States violated the Taylor Rule during the housing bubble, most of Taylor's book describes and interprets what happened during the crisis.

Taylor's most important claim is that the crisis was driven by counterparty risk rather than by liquidity shortages. Bernanke and Paulson thought the main problem financial firms faced was a lack of liquidity; there simply wasn't enough money in the system to allow normal exchanges and funding to occur. This indeed was the problem during the early years of the Great Depression as shown by Milton Friedman and Anna Schwartz.¹¹ But Taylor argues that the main problem in 2008 was different.

For example, the Federal Reserve began adding liquidity to the market in late 2007 and early 2008, but the additional liquidity seemed to have no effect on reducing the Libor-OIS spread, a major indicator that all is not well in financial markets.¹² Fed policy also contributed to the economic slowdown because their rapid reduction of interest rates in late 2007 and

early 2008 contributed to the falling value of the dollar. That falling value, in turn, caused commodity prices (especially oil) to spike in late 2007 and early 2008, prolonging and worsening the coming recession and crisis.¹³ The spike in commodity prices that Taylor connects with low interest rates and dollar devaluation dovetails nicely with Austrian Business Cycle Theory claims that resource prices will be bid up as artificial credit leads firms to engage in too many projects simultaneously.

Another critical part of Taylor's description of the crisis is that Lehman Brothers' bankruptcy was not the catalyst for the worst part of the financial crisis. The announcement and passage of the Troubled Asset Relief Program (TARP) triggered the worst part of the crisis because initially there was no clear plan or explanation of how the program would work. Instead, it simply created widespread panic and pessimism in already weak equity and capital markets. Investors' uncertainty, fear, and doubt regarding TARP and the state of the economy caused the S&P 500 to decline by 27% over a matter of weeks following its passage.

Conclusion

The claims made by dissenting scholars range from the Federal Reserve fueling the housing bubble and the mortgage derivative market through keeping interest rates too low for too long to Congress and regulatory agencies requiring banks and the GSE's to lower their underwriting standards and fund more subprime and Alt-A mortgages to special risk-weighted capital rules that encouraged banks to shift their investment portfolios to holding more MBS. Behind the scenes, credit rating agencies enabled this massive build-up in mortgages and mortgage derivatives by giving AAA and AA ratings to so many MBS that allowed pension and insurance funds to purchase the assets in the first place and allowed banks to hold less capital. It's hard to say which of these was most important. Each factor was necessary to create the financial crisis, but none of the factors, by themselves, would have been sufficient.

Notes

¹ Mueller (2014), "An Austrian View of Expectations and Business Cycles."

² Wallison (2016) and Acharya et al. (2011).

³ Ibid.

⁴ Boettke & Horowitz (2009); another Austrian take on the crisis is Thomas Woods (2009), *Meltdown*.

⁵ These roughly coincide with the “sand states,” i. e. California, Nevada, Arizona, and Florida

⁶ Freddie Mac, 30-Year Fixed Rate Mortgage Average in the United States [MORTGAGE30US], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/MORTGAGE30US>, June 21, 2018.

⁷ Friedman (2010), “A Perfect Storm of Ignorance”

⁸ Ibid.

⁹ See Allison (2012) and Wallison (2016).

¹⁰ Taylor (2009), pg. 60.

¹¹ Friedman & Schwartz (1967).

¹² Taylor (2009), pg. 20.

¹³ Ibid, pgs. 23-24.

CHAPTER EIGHT

ASSESSMENT OF COMPETING EXPLANATIONS

With the announcement of TARP, isolated liquidity issues turned into a tsunami impacting all banks and all industries. It precipitated a dramatic drop in the stock market, froze trading and the capital markets, magnified and extended the market collapse, damaged the reputations of many financial institutions who did no wrong, increased moral hazard, institutionalized “too big to fail,” angered and outraged the general public, and provided Congress an excuse to burden the banking industry with a massive 25,000 pages of new regulations—the largest increase in bank regulations in history.¹

The conventional wisdom holds that Lehman Brothers' bankruptcy on September 15, 2008 began a panic during which stock prices collapsed, and market liquidity vanished. Only the extraordinary interventions taken by the Treasury and the Federal Reserve, including ad hoc bailouts, the Troubled Asset Relief Program (TARP), and extensive lending facilities checked the market's freefall. A closer look at stock prices, credit spreads, and the timing of government programs, however, casts serious doubt on the conventional wisdom. Stock prices declined about twice as much in the three weeks after TARP was passed as they did in the three weeks after Lehman Brothers' bankruptcy. Similarly, stock prices declined almost twice as much in the five months after TARP as they did in the five months before TARP. That disparity was many times larger for financial stocks. Furthermore, eight of the ten largest one-day declines in stock prices occurred after TARP. Government intervention seems to have created and aggravated market panic rather than calmed it.

Of the many government interventions during the crisis, TARP seems to have been one of the worst. As the former CEO of Wells Fargo puts it:

I believed at that time, said so at the meeting, and I still believe today that forcing all banks to take TARP funds, even if they didn't want or need the funds, was one of the worst economic decisions in the history of the United States.²

Dissenters from the conventional wisdom argue that bankers, investors, homeowners, and political actors all participated in making the crisis because various government policies created perverse incentives for them to do so. Government interventions worsened and prolonged the financial crisis in three ways: by creating legal and regulatory uncertainty, by fostering panic in the market, and by subverting profit, loss, and price signals.

Legal and regulatory uncertainty

Economist Robert Higgs has shown pretty definitively that “regime uncertainty” reduces economic growth. The hodgepodge of policy responses during the crisis certainly constitutes regime uncertainty. Below is a recap of important policy interventions in 2008:

March 2008

The Treasury and the Federal Reserve brokered a deal whereby JP Morgan Chase acquired Bear Stearns at \$2 a share after the Fed bought \$30 billion of Bear’s riskiest assets. The final share price was raised to \$10 after investors demanded more compensation. Regulators had made a practice of rescuing banks’ creditors for decades. But this case set a new precedent of bailing out the *shareholders* of a distressed firm.³ The Bear bailout created two important expectations. First, the government was unwilling to let large financial institutions fail. Second, everything was on the table for negotiation.

September 8, 2008

Without notice or warning, the Treasury Department announced that it was placing Fannie Mae and Freddie Mac, the two GSEs responsible for over half of the home mortgage market, into conservatorship. This came not long after Barney Frank had said: “I think this is a case where Fannie and Freddie are fundamentally sound, that they are not in danger of going under.” And Hank Paulson had defended the viability of the GSEs only a few months earlier.

September 15, 2008

Although they attempted to broker a private deal, the Treasury and the Fed refused to bailout Lehman Brothers. This was not what most people expected because it was entirely inconsistent with the fact that regulators had essentially bailed out Bear Stearns six months earlier. Lehman, fully expecting to be bailed out, had not prepared for bankruptcy. Their

unexpected and disorderly bankruptcy caused many problems for their counterparties.

September 16, 2008

The first of three AIG bailouts occurs. Ultimately the government would use close to \$180 billion dollars to keep the giant insurer in business. Note that this bailout came literally the day after government officials refused to bailout Lehman Brothers.

September 19, 2008

The Treasury creates an insurance program to guarantee money market mutual fund deposits—thereby ending the run on the multi-trillion-dollar money market sparked by Reserve Primary Fund breaking the buck after writing off hundreds of millions of dollars of Lehman debt.

September 21, 2008

Morgan Stanley and Goldman Sachs, the two remaining investment banks, were granted bank holding company status by the Federal Reserve – meaning they gained access to huge amounts of liquidity from the Fed. Not only was their application to become a bank-holding company fast-tracked, Lehman Brothers and Merrill Lynch were not even offered this option a week or two earlier.

September 25, 2008

The FDIC decides to subvert the normal bankruptcy process for Washington Mutual (WaMu). Normally, insured depositors, senior bondholders, and junior bondholders all get paid before uninsured depositors do. But the FDIC wanted to prevent a general run on uninsured deposits at other banks. Since WaMu held a large quantity of uninsured deposits, the FDIC worried about running out of funds if it compensated WaMu's uninsured depositors itself. So, the FDIC decided to take money from bondholders, illegally, and give it to uninsured depositors. This arbitrary decision violating bankruptcy law created panic among bondholders and shut down capital markets for banks.⁴

September 29, 2008

The legislation to create the Troubled Asset Relief Program (TARP) was rejected by the House of Representatives. The stock market declined almost 7% that same day!

October 3, 2008

President Bush signs the Emergency Economic Stabilization Act of 2008 into law. The Act creates TARP and also allows the Fed to begin paying interest on bank reserves immediately.

October 13, 2008

Secretary Paulson announces a change in strategy for executing TARP. Instead of buying toxic assets, the Treasury would use TARP funds to buy equity in banks to increase their capital reserves.

October 2008

The government brokered a deal for Citigroup to purchase Wachovia with some government assistance. In a bizarre turn of events, within a week Wachovia broke that contract, with regulators' blessing, after Wells Fargo made a better offer without government assistance. Citigroup sued Wachovia and Wells Fargo for the absurd sum of \$60 billion dollars. The suit was settled out of court in 2010 for \$100 million dollars. Similar to fast-tracking Morgan Stanley and Goldman Sachs' applications to become bank holding companies, the Federal Reserve rushed approval of the biggest bank acquisition in history while conveniently waving aside antitrust rules.

All these examples highlight the inconsistency in methods, goals, and processes of government intervention. Winners and losers seemed to be determined by Paulson and Bernanke rather than by the market. There was also a great deal of legal uncertainty regarding contracts. Rules seemed to be changed or made up at the drop of a hat: the change in Bear's stock price, taking over the GSEs, bailing out AIG while letting other companies fail, circumventing bondholders' claims to payment from Washington Mutual, and nullifying Citi's contract to acquire Wachovia. This government-induced uncertainty contributed greatly to the crisis overall. It made it nearly impossible for banks to borrow or to raise more capital after the illegal haircut given to Washington Mutual bondholders.

Market Panic

Besides creating legal and regulatory uncertainty, government officials also contributed to panic among investors. Regulators and public officials repeatedly put a positive spin on financial market turmoil—for the public's own good, of course. But “you can't fool the markets as Treasury officials and regulators believed you could.”⁵ Government officials demonstrated their lack of understanding and lost credibility as bad news repeatedly

followed their rosy assessments of the economy: “The failure of the GSEs after Paulson[’s] defense of them reduced his credibility even further.”⁶

John Taylor claims that market turmoil increased significantly after Paulson and Bernanke testified in Congress about TARP:

people were warned by the government not only that “there is systemic risk” but also that “the Great Depression is coming.” This scared people around the world and led to panic and a severe hit to the world economy.... transparency would have given people some sense of policy actions to come. But no such description was provided.⁷

Paulson testified in Congress that he needed \$700 billion dollars to prevent the world from ending. At the same time, he didn’t explain what the problem was or how he would use the money: “When the head of the Federal Reserve, the Treasury, and the president announced that Western civilization would end unless Congress approved a \$700 billion bailout, people panicked.... The announcement of the need for the bailout temporarily paralyzed business decision making.”⁸ Government officials were unclear about the precise nature of the problems in the market (probably because they didn’t know more than anyone else did) as well as how their proposed policy solutions would fix the problems. Will the government bail out failing banks? ‘Yes, no, I don’t know!’ seemed to be the answer.

Fortunately, we have several measures of uncertainty in the market. One, of course, is stock prices. But another important one is the LIBOR-OIS spread. This spread measures the difference between the overnight lending rate between banks in the U. S. (Overnight Index Swap - OIS) and the overnight lending rate between banks outside the U. S. (London Interbank Offered Rate - LIBOR). The OIS is secured by the Fed and therefore riskless. LIBOR is not guaranteed by the Fed. It is considered safe because it is only overnight, but not riskless. The difference or spread between LIBOR and OIS measures how much risk investors and banks see in the market.

Normally, the spread is small and stable. But during the crisis, the spread began increasing and moving unpredictably. From the middle of September to the middle of October, the LIBOR-OIS spread spiked (Figure 8.1). You can see that public officials’ dire warnings about the possibility of another Great Depression and their vague testimony about how TARP would work were far more significant than Lehman’s failure and seem closely related to the spike in the LIBOR-OIS spread.

Figure 8.1: LIBOR-OIS Spread

Event Study of the Worsening Crisis: LIBOR-OIS Spread, Fall 2008.

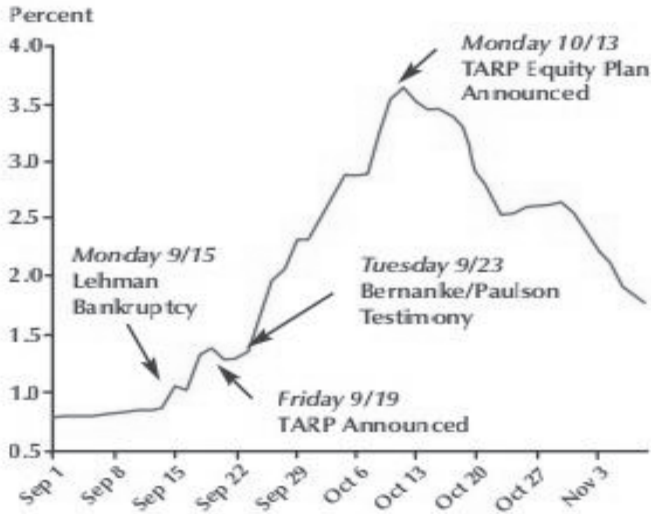


Figure from Taylor (2009)

Just as a massive increase in fear and uncertainty triggered the worst part of the 2008 financial crisis, allaying that fear “ended” the panic. Once the Treasury clarified how it would implement TARP, fear and panic began to subside. That reduction in uncertainty, rather than simply a commitment to “do something,” calmed markets. However, that reduction in uncertainty did not improve the underlying economic or financial fundamentals. Nor did it undo all the damage caused by the earlier uncertainty.

One important challenge to the workability of TARP was managing investor expectations. The program was created to shore up weak banks. But Paulson worried that if only some banks took TARP money, investors would realize that those banks were in trouble and remove their funds—weakening those banks even further. Making all the banks accept TARP seemed like the logical way to prevent runs on the weakest ones. Yet Paulson’s reasoning backfired: “Forcing TARP funds on all banks did not restore confidence in the industry. It destroyed confidence as the market concluded that all banks must now be in trouble because all banks were receiving funding and presumed to have needed and wanted it.”⁹ This shows up clearly in the rapid decline in bank stock prices after TARP.

Allison claims that over the summer and into September depositors were fleeing riskier banks for safer ones, like Wells Fargo and BB&T. That flow of funds ended abruptly once TARP painted every bank with the same brush making them all look equally unsafe.

Thwarting profit and loss mechanisms

Government responses distorted profit, loss, and price signals. Normally productive firms earn profits and expand while inefficient or unproductive firms lose money. Markets, therefore, lead to the growth of successful firms and the decline or disappearance of unsuccessful firms. The economy grows and we all benefit from this process. Massive losses on Wall Street should have caused big firms like Goldman Sachs, JP Morgan, and Citigroup to shrink considerably or disappear entirely. The same could be said of AIG. Bank of America had problems due to its acquisitions of Countrywide and Merrill Lynch (the latter at the Fed's insistence). Wells Fargo probably would have done better without Wachovia. The flight to quality would have weeded out the weakest firms – without necessarily creating the systemic collapse feared by Bernanke and Paulson when they advocated TARP. Yet these firms are still around. Citigroup and AIG have gotten smaller, but they are still enormous. In 2016, AIG had half a trillion dollars of assets and was worth \$75 billion.

The possibility of loss imposes discipline on firms. They select their projects and investments more carefully. They also manage and limit their risk. But if they expect to be helped during bad times, this discipline declines due to moral hazard. The clearest government contribution to moral hazard can be seen in the Bear bailout:

The Bear Stearns bailout was a terrible message to the capital market. Since Bear Stearns was the smallest and least significant of the top six investment banks, the implication was that the larger investment banks had an implicit guarantee from the U. S. Treasury. Had Bear Stearns failed, Lehman would almost certainly have taken more aggressive action over the next six months to reduce risk and raise capital. With the Bear bailout (including compensation to shareholders), Lehman believed that the worst-case scenario was a government bailout at a lower stock price. Why not keep gambling, hoping that the company could stay afloat, when we knew that in the worst case, the government would save us?¹⁰

This claim was substantiated by the repeated statements by Lehman's chief executive, Dick Fuld, that the Treasury would not let them go bankrupt. He insisted, up to the very last minute, that Lehman receive a "Jamie deal" and that they were too important to be allowed to fail.

Governments have bailed out creditors of large financial institutions for decades. Yet bailouts took on a new character and much larger scale during the 2008 crisis. Now shareholders were being rescued. At the end of the day, it appears that the government bailout, TARP, really was a bailout of weak institutions that needed the money (like Citigroup, Merrill Lynch, Morgan Stanley, and AIG) and a tax on healthier banks: “Who bailed out whom? Wells Fargo, for example, within one year of receiving TARP funds, paid the U. S. government back including \$2.5 billion in interest costs and warrants for money we never wanted and for money we never even used.”¹¹ It was the same story for BB&T. Not only did healthy banks have to pay large amounts of interest on the money they were forced to borrow, they also suffered significant reputational harm – as seen in declines in their stock prices and the decline in deposits flowing to them from weaker banks.

The result of these many bailouts and transfers, along with the more stringent regulations and requirements accompanying them, was reduced efficiency in the economy. The U. S. experienced one of its slowest recoveries on record following the financial crisis. In 2008, less efficient firms were kept in business while more efficient firms were taxed and faced more stringent rules – even though they were operating prudently and effectively to begin with. Annual real growth over the past decade averaged about 2%. Historical recoveries, though not as long as our current one, have averaged 4% annual real growth. Less efficiency and slower economic growth have important implications when assessing whether government intervention during the 2008 financial crisis was warranted.

Evidence

Did Lehman Brothers’ bankruptcy send markets into a death spiral of write-downs, defaults, and panic requiring TARP and various Fed lending facilities to prevent total collapse? Government officials claim that they didn’t want to let Lehman fail.¹² According to those same officials, all hell broke loose when Lehman declared bankruptcy. But did it?

Contrary to the conventional wisdom, it appears that Lehman’s failure was a negative shock to financial markets, but hardly a catastrophic one. On the other hand, political uncertainty regarding TARP, and its disruption to financial markets, are related to nearly all the largest single-day stock market declines during the crisis. A lot certainly happened in the weeks following Lehman’s demise. AIG was bailed out. Reserve Primary Fund broke the buck and the Treasury guaranteed money market mutual funds.

Bank of America began talks to acquire Merrill Lynch. Morgan Stanley and Goldman Sachs became bank holding companies with access to the Fed's discount window. Wachovia was purchased by Wells Fargo. Washington Mutual, the sixth largest bank in the U. S., was placed into receivership by the FDIC. That may seem like a death spiral to those who saw each development as catastrophic, as Paulson and Bernanke did. But the truth is that the broader market took these developments in stride.

Although Lehman's failure was certainly a blow to markets, it was not the main cause or catalyst of the financial crisis as Mark Zandi and Richard Posner claim.¹³ The only financial

institution that suffered serious losses [because of Lehman's failure] was the Primary Reserve Fund, a money market mutual fund that continued to hold large amounts of Lehman's commercial paper, in the mistaken belief—probably induced by moral hazard—that the US government would rescue Lehman as it had rescued Bear.¹⁴

Reserve Primary Fund breaking the buck represented a kind of default and triggered panic in the money market mutual fund industry. But the Treasury's guarantee of all money market funds ended that panic swiftly and decisively within a few days.

Besides Reserve Primary, no firms were bankrupted because they held Lehman's debt. But what about the thousands of counterparties who had contracts with Lehman? Did they suffer catastrophic losses when it failed? Zandi and Posner suggest that damage to the credit default swap market and Lehman's many counterparties was significant. Initially there were some problems clearing payments from Lehman because it had not prepared for bankruptcy, but:

Even the credit default swaps (CDS) market—cited by many as the very “shadowy” heart of the interconnections problem—continued to function normally after Lehman's failure. Lehman was a major player in the CDS market, and at the time of its bankruptcy had 900,000 outstanding CDS contracts. Most of these were canceled by Lehman's counterparties—as provided in bankruptcy law—and the remaining ones became claims against the bankrupt estate. CDSs written on Lehman itself were settled five weeks after its bankruptcy by the exchange of less than \$6 billion among hundreds of counterparties. As far as we know, no Lehman counterparty failed because Lehman failed, or could not make good on its CDS obligations.¹⁵

Although Lehman's unexpected failure created panic and losses, there were no cascading defaults or market unraveling.¹⁶ Allison and Kovacevich

both claim their banks could raise capital and were flush with cash as investors and depositors fled weaker banks.

A few simple observations about stock prices cast more doubt on the claim that Lehman's failure triggered the worst decline in financial markets while TARP and Fed lending facilities stopped the bleeding. There were two days of large declines in stock prices the week Lehman failed. Yet there were also days with large gains. In fact, the market finished less than half a percent lower the Friday *after* Lehman failed than it did the Friday before. On September 12, the DJIA closed at 11,422. On September 19, the DJIA closed at 11,388. That means that in the week following Lehman's failure, the stock market declined by only .3%. In contrast, in the week following TARP's passage, the stock market declined an astonishing 18.2%!

The main problems with TARP were uncertainty and doubt about how it would work. Those problems were mostly resolved when the Treasury announced its equity infusion plan on Monday, October 13th. Just as the LIBOR-OIS spread correlated with TARP events, general stock prices did too (Figure 8.2). A severe decline in stock prices beginning with the announcement of TARP seems to end once the program is clarified.

While Taylor makes an important observation about the immediate effects of TARP, it's worth noting that stock markets continued to decline by an additional 30% after the equity plan was announced. Even reducing uncertainty regarding government policy did not undo the damage to market institutions inflicted by government intervention.

The day Lehman declared bankruptcy only ranks as the tenth largest single day decline in 2008. The only other one-day decline in the top ten before TARP's passage was on September 29th – the Monday following the FDIC giving illegal haircuts to senior bondholders of Washington Mutual and, even more importantly, the day TARP was first put to a vote and failed to pass. The decline on this day cannot be attributed to Lehman's failure two weeks earlier. It was due to uncertainty and fear created by two major political interventions.

Financial firms, which TARP was supposed to help, saw their stock prices decline precipitously after TARP was passed. Between Lehman's failure and TARP's passage, the S & P 500 declined 11%; bad, but not catastrophic (Table 8.2). Even more surprisingly, bank stock prices only lost 1%-2% over this three-week period. Compare that with declines of 19.5% for the general market (S&P 500) and 14.1% to 22.7 % for bank stocks over the three weeks after TARP was passed.

Figure 8.2: Stock Prices During TARP Uncertainty

Event Study of the Worsening Crisis: S&P 500 Index, Fall 2008

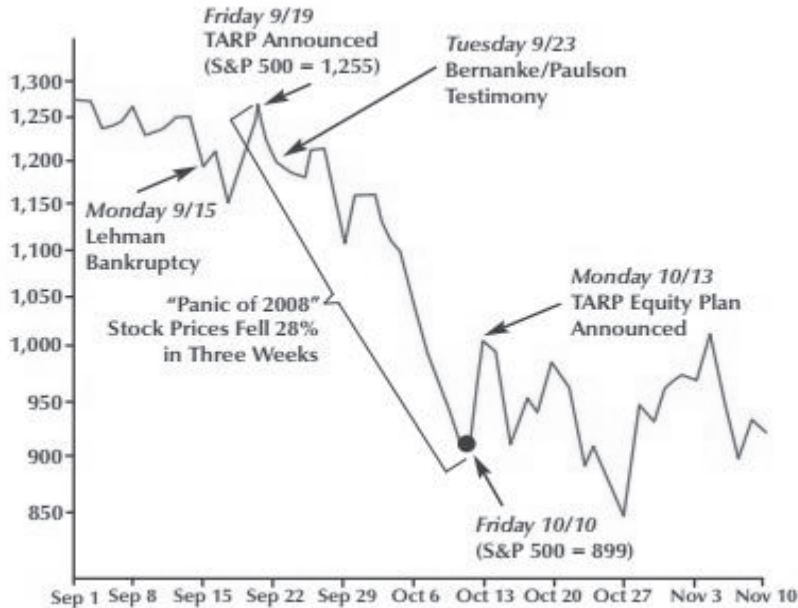


Figure from Taylor (2009)

Table 8.1: Largest DJIA Declines in 2008

Rank:	Date:	Decline:	Notes:
1	10/15/2008	-7.8%	After TARP
2	12/1/2008	-7.7%	Before TARP
3	10/9/2008	-7.4%	
4	9/29/2008	-6.9%	TARP fails to pass
5	10/22/2008	-5.6%	
6	11/20/2008	-5.6%	
7	10/7/2008	-5.1%	
8	11/5/2008	-5.0%	
9	11/6/2008	-4.9%	
10	9/15/2008	-4.4%	Lehman fails

Table 2.2: Stock Market Declines Before and After TARP

	Lehman to TARP (3 weeks)	After TARP (3 weeks)	Pre-TARP (21 weeks)	TARP to trough (21 weeks)
	9/12/08 to 10/2/08	10/2/08 to 10/22/08	4/27/08 to 10/03/08	10/3/08 to 3/9/09
DJIA	-8.2%	-18.7%	-19.8%	-36.6%
Nasdaq	-12.6%	-18.3%	-19.7%	-34.8%
S & P 500	-11.0%	-19.5%	-21.3%	-38.4%
^BANK Index	-2.1%	-14.1%	-6.9%	-50.8%
^BKX Index	-1.3%	-22.7%	-19.7%	-71.0%

TARP didn't fix the so-called disaster of Lehman's bankruptcy because "the first funds made available under TARP were not provided until October 28, 2008, about six weeks after Lehman's failure. By that time, any firm that had been mortally wounded by Lehman's collapse would have filed for bankruptcy."¹⁷

Bank stocks fell over 80% less than the general stock market did in the three weeks between Lehman and TARP, but only 2.5% less than the general market in the three weeks after TARP was passed. Looking at six months before and after TARP, financial stocks fell about 34% less than the general market before TARP was passed, but 66% *more* than the general market after TARP. After TARP financial stocks moved in the same direction as the general market but with a much greater magnitude. Stock markets did not recover, or even stabilize, until long after TARP and the Fed's lending programs took effect.

Of course, there are many complex factors and counterfactuals to deal with, but at least on the surface, it's clear that stocks did not melt down right after Lehman failed. Given that general stocks fell more than 34% in the five months following TARP while bank stocks fell between 50% and 70%, one can't help but wonder if the "cure" was worse than the disease.

After looking at stock prices and LIBOR-OIS credit spreads before and after TARP, the conventional wisdom expressed by Bernanke, Paulson, Zandi, Posner, and others seems quite weak. Conclusive evidence is hard to find—especially considering that one must deal with the counterfactual claim that markets *would have declined more* in the absence of TARP.

Perhaps, but surely such a claim bears the burden of proof. The evidence presented here should move the burden of proof from those who think TARP was unnecessary and destructive to those who claim TARP was all that stood between us and catastrophe.

Advocates of the conventional wisdom need to explain why stock prices (especially for financial firms) declined far more after TARP was passed than they did after Lehman failed. They need to provide evidence that government interventions did in fact calm markets rather than make them more fearful and uncertain—a tall order considering Paulson's own account of how markets didn't seem to respond favorably to his many empty assurances that "everything was fine." Taylor nicely summarizes the dissenting view when he says that "the disruption [to markets] does not seem to be as much due to the Lehman Brothers bankruptcy as it is to the series of policy responses."¹⁸

Counterfactuals

Many have argued that governments had to do something during the crisis to prevent complete financial Armageddon. They may be right. Although TARP doesn't look so good in light of the evidence just presented, it is difficult to imagine what the fallout would have been if the GSEs had defaulted on hundreds of billions of dollars of debt held by companies and countries around the world. It is also difficult to imagine what a run on the multi-trillion dollar money market mutual fund industry would have done to the economy. I can't make a strong case that all government intervention was unwarranted or that all the interventions created even bigger problems. Perhaps describing different cases against government intervention, the easy case, the moderate case, the hard case, and the hardest case, will provide more clarity in assessing the government's role in the crisis.

Easy Case

The easiest case to make is that government regulators should not have bailed out Bear Stearns in March of 2008. Although some people would argue that letting Bear fail would simply have started the crisis earlier, most analysts, including some conventional wisdom advocates, don't think Bear's failure would have been catastrophic. The economy was much stronger in March than in September or October. Financial firms' balance sheets were stronger. And Bear was a relatively small investment bank—meaning its fallout would have been limited.

On the upside, allowing Bear to fail would have set clear expectations for investors: the government is not going to bail out shareholders and financial markets can survive large unexpected bankruptcies. Bear's failure would also have imposed more discipline on Lehman Brothers, Merrill Lynch, and other banks that now had to worry about their stock price going to zero and their creditors taking haircuts. They would have raised capital more aggressively to strengthen their balance sheets. They would also have been more willing to be acquired by healthier firms at any price. There's a distinct possibility that a world where Bear fails would have experienced a sharp recession due to the real mortgage losses and deleveraging, but without a financial crisis.

Moderate Case

A moderate case can be made that letting Lehman fail was the right call. As I've argued extensively above, Lehman does not appear to trigger the 2008 financial crisis. If anything, TARP triggers it. Lehman did not set off any unstoppable row of dominos. Reserve Primary Fund failed and AIG ran into dire straits, but that could have been the end of it, especially given that the Treasury stopped the run on MMMFs.

The Lehman failure could have been handled better. If the Fed and Treasury had encouraged Lehman to prepare for bankruptcy, its failure would have been less disruptive. Even though this position is the polar opposite of the conventional wisdom, I think it is backed by significant evidence and hence is the moderate case.

Hard Case

The hard case involves letting AIG and the money market mutual funds fail. It's impossible to say exactly what would have happened. In AIG's case, we know that only the parent company and the financial products subsidiary would have gone bankrupt. The rest of its insurance businesses would have been able to continue unimpeded. AIG failed because it had to put up tens of billions of dollars of additional collateral over a very short time frame, which it was unable to do.

The bailout money given to AIG went right out the door to its counterparties who had bought CDS insurance from AIG. This involved billions of dollars to Goldman Sachs specifically, as well as billions of dollars to other banks and hedge funds. Would these firms have failed as a result of AIG failing? No, not as a direct consequence. They would not have taken huge losses in the event of AIG's bankruptcy. However, if they

had not received the significant payouts from AIG, their financial positions would have been weaker than they otherwise were.

Letting the run on money market mutual funds (MMMF) continue could have been catastrophic. There was over a trillion dollars worth of assets in this market. Offering them as a fire sale could have driven prices through the floor and created more debt deflation. Some folks are not persuaded this would have been the case. All the money that was being withdrawn from MMMFs could have found its way onto bank balance sheets and been used to buy the assets being sold by MMMFs. While this is possible, it would be difficult to argue persuasively.

Hardest Case

The hardest case to make is that the government should not have gotten involved at all *after* it bailed out Bear. Arguing this case means that Fannie and Freddie are not nationalized. The mortgage market would have collapsed overnight in this scenario. Instead of house prices declining 20%-30% from their peak, we could have seen declines of 50% or more, which would have pushed mortgage default rates even higher, creating even more losses.

On top of that, letting Fannie and Freddie fail would have damaged the U. S. international standing. Foreign investors and sovereign wealth funds held billions of dollars of Fannie and Freddie's debt and viewed it as equivalent to U. S. government debt. Letting the GSEs default would have been seen as a national default by many foreigners. As countries dumped hundreds of billions of dollars of U. S. debt, interest rates and credit markets would have spiraled out of control.

The hardest case also includes letting Citibank and perhaps the other investment banks fail too. These would all have been larger bankruptcies than Lehman, which itself was the largest bankruptcy in U. S. history. Citibank could have been unwound like IndyMac or WaMU as a bridge bank by the FDIC, but only at significant taxpayer cost. If the other large investment banks failed, it is unclear who would have been left to pick up the pieces. More dominoes would have fallen in a market with increasingly scarce dominoes remaining upright.

Of course, not bailing out Bear Stearns in March would have encouraged the investment and commercial banks to clean up their act enough to prevent the terrible panic and crash from happening altogether. But given the trajectory after Bear was bailed out, it's almost impossible to argue that no government intervention of any kind was warranted.

Still, most of what the government did made things worse rather than better. Political actors' myopia and interests prevented them from seeing this. But before we are too harsh on them, it is important to remember that people have natural biases which make immediate phenomena seem disproportionately important. There was so much chaos, confusion, and fear during the crisis that it is not surprising that most people remember Lehman's failure as pivotal, even if it wasn't. People also need some explanation of why the crisis eventually ended. Given the huge amounts of money spent, and programs created by the Treasury and the Federal Reserve, it is not surprising they attribute some efficacy to those programs. Both of those conclusions rest on shaky ground and are hard to justify.

But let's take another counterfactual or two to give the conventional wisdom its due. Can we really conclude that Lehman was not a catastrophic event? Even though there was a cascade of failures, mergers, and bailouts, the evidence from stock prices and credit spreads clearly suggests that the three weeks following Lehman were not catastrophic. But maybe that is *because* subsequent government involvement maintained confidence. The evidence doesn't show that Lehman's collapse wasn't catastrophic. It shows that policy interventions like bailing out AIG and guaranteeing MMMFs muted the catastrophe.

There is something to this argument. Bailing out AIG relieved a lot of investors (especially at big banks on Wall Street). And guaranteeing money market mutual funds certainly prevented significant disruption in money markets and possible debt deflation. However, if these interventions stabilized the market, why was TARP needed? And furthermore, why were there significant declines when TARP was announced, when it failed to pass, and then a catastrophic decline the week *after* it passed? And why was there so much more stock volatility after it was passed? I'll grant that markets could have done worse in the wake of Lehman's failure without the AIG bailout and the MMMF guarantee. But will conventional wisdom advocates grant that there could have been less decline without TARP? If so, the net benefit of government intervention remains unclear.

But let's tweak the counterfactual. I've argued that most of the government interventions during the crisis were harmful. So, what would have happened if there had been no TARP program, no bailout of AIG, no illegal haircut to WaMu bondholders? My guess is that markets would have done better, perhaps much better. Advocates of the conventional wisdom argue that markets would have done worse. We can't know for sure who is right because that world doesn't exist. But consider the following compromise for those who still think TARP prevented even greater market declines:

I will grant that markets would have done worse without TARP and many of these other interventions *if* conventional wisdom advocates will grant that the economy would have recovered and grown more quickly because profit and loss signals were allowed to work because there was a much smaller increase in costly regulations, and because the least efficient firms would have shrunk while the more efficient ones would have grown.

I am not going to ask for an absurdly high rate of recovery. Even with a better growth rate below the average rate of the previous ten recoveries, people's concern about a deeper market decline without government intervention becomes less relevant. GDP could have declined twice as much as it actually did, and we would still be wealthier today because of a healthier economy and higher growth.

From the trough of the recession in March 2009 to March 2017, the real economy grew at an annual average rate of 2.08%—for a total of 15.5% growth over that eight-year period (Table 8.3). The historical annual average growth rate following the previous ten recessions was 4.3%. If we had that level of growth over the past eight years, the economy would have grown 34.27%. Many economists call that massive disparity “The Great Stagnation.”

Table 8.3 Growth Rates After Recessions

	Annual Growth (2009-2017)	Total Growth (2009-2017)	Economic decline while still reaching 2017 levels
Actual Growth	2.08%	15.50%	Actual (-4.2%)
Actual Growth + .5%	2.58%	19.52%	175% worse (-7.35%)
Actual Growth + 1%	3%	22.99%	225% worse (-9.45%)
Avg. previous 10 expansions	4.3%	34.27%	400% worse (-16.8%)

The point is that even if the economy had slid into a deeper recession, or even a depression without government bailouts or guarantees, higher growth could have more than made up for it. Even a half a percent higher real growth over the past eight years would have more than compensated for an additional 75% decline in GDP during the recession. And at the historical rate of recovery, the economy could have declined four times

more than it did (and remember, it was the Great Recession!) and we would still be back where we are today.

These counterfactual scenarios do not offer definitive proof. Rather they show that my case against most government intervention in 2008, and especially TARP, makes sense even if the economy declined more sharply but had healthier markets. Maintaining market discipline and efficiency would have been a far better policy goal during the crisis and would likely have put the economy in a much better place eight years later—even if the recession had been significantly deeper.

Conclusion

Some specific government interventions clearly disrupted markets and created harmful unintended consequences, especially bailing out Bear Stearns and creating TARP. Other government interventions likely averted catastrophe, like nationalizing Fannie and Freddie. And most are still up for debate—AIG, MMMFs, Merrill Lynch, Morgan Stanley, Goldman Sachs, etc. But what is clear throughout is the government’s contribution to reducing the effectiveness of markets by thwarting profit and loss signals, creating moral hazard, and adding significant amounts of uncertainty and panic to markets.

Notes

¹ Kovacevich (2014), pg. 543.

² Ibid.

³ Allison (2012), pg. 162.

⁴ Ibid, pgs. 75-76, 163.

⁵ Kovacevich (2014), pg. 543.

⁶ Allison (2012), pg. 164.

⁷ Taylor (2009), pg. 170.

⁸ Allison (2012), pg. 165.

⁹ Ibid, pg. 543.

¹⁰ Ibid, pg. 162.

¹¹ Kovacevich (2014), pg. 545.

¹² You can find two excellent accounts of the feverish planning that went into the attempted rescue of Lehman in Paulson’s (2010) memoir and in Sorkin’s (2010) book: *Too Big to Fail*.

¹³ Zandi (2008), pgs. 6, 28-29, 193, 213; Posner (2009), pgs. 133, 274, 276-277.

¹⁴ Wallison 2011, p. 4

¹⁵ Ibid.

¹⁶ Stringham (2014), “It’s not me, it’s you.”

¹⁷ Wallison (2011), pg. 4.

¹⁸ Taylor (2009), pg. 172.

PART III –
WHAT NOW?

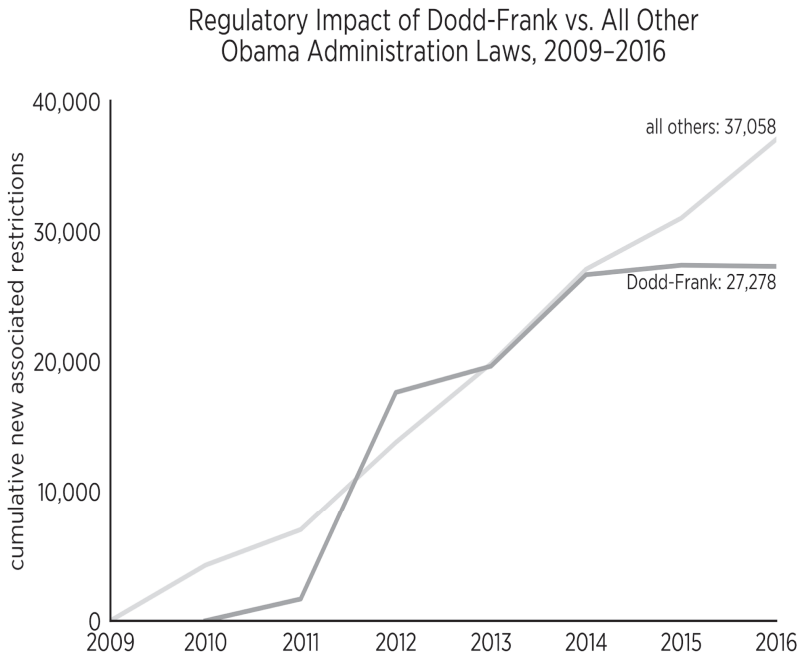
CHAPTER NINE

HOW THINGS HAVE CHANGED SINCE THE CRISIS

The world changed after the 2008 financial crisis. Banking policy, income inequality, housing policy, monetary policy; all changed in substantive ways. The biggest and most direct change due to the crisis was a remarkable increase in financial regulation through the Dodd-Frank Financial Reform Bill. Going hand in hand with this radical increase in regulation were new and unprecedented monetary policies undertaken by the Federal Reserve. One of the unintended results of these two significant changes is increasing consolidation in the financial industry and in corporate America more generally. That has contributed to slow economic recovery and slow wage growth over the past decade. The world has also seen increasing political polarization, the rise of populism, and increasing skepticism of free market capitalism.

Dodd-Frank Financial Reform Bill

The Dodd-Frank reform bill is remarkable simply for its volume. It created almost as many new rules as every other law passed under President Obama (Figure 9.1). The scope of the rules includes disclosures, reporting, stress testing, capital requirements, debit card fees, and on and on. Banks have hired armies of lawyers simply to understand what the regulations are. They have a strong incentive to do so since they can be held criminally liable if they violate these rules.

Figure 9.1: Rules Created by Dodd-Frank

There are sixteen titles in Dodd-Frank:

Title I: Financial Stability

Title II: Resolution

Title III: Ending the Office of Thrift Supervision

Title IV: Hedge Funds

Title V: Insurance

Title VI: New Authority for the Fed

Title VII: Derivatives

Title VIII: Systemically Important Utilities and Activities

Title IX: Securities and Exchange Commission

Title X: Consumer Financial Protection Bureau

Title XI: Fed Transparency and Bailouts

Title XII: Government Grant Programs

Title XIII: Recouping Costs of Government Programs

Title XIV: Mortgages

Title XV: Requirements for Nonfinancial Companies

Title XVI: Taxing Derivatives

Several titles involve resolving the various government bailouts, supports, and provisions created during the crisis itself. The most controversial piece involves the Consumer Financial Protection Bureau (CFPB), an agency created with large amounts of discretion to prosecute financial firms. The CFPB was also controversial because it does not require Congressional appropriations for its funding. Instead, its budget is funded out of Federal Reserve profits.

Dodd-Frank has a handful of useful provisions, but much of it creates needless difficulty and complexity. The new legislation includes a handful of glaring gaps where it doesn't address some of the most important causes and problems of the financial crisis. The useful provisions include requiring more capital for certain institutions that were able to avoid the strictness of the Basel Rules. High leverage certainly added fuel to the fire during the 2008 financial crisis, but it was not the match. Requiring banks to hold more capital obviously make the firms and the financial system safer. But the more important and difficult question is how to weigh the costs of requiring firms to hold more capital. Usually, there is a tradeoff between how much risk a firm takes and the cost of providing financial services. Higher capital requirements make it harder for banks to generate high returns. But it also makes it costlier for them to provide financial services.

The financial reform act also gives the FDIC more authority to receive and unwind large systemically important financial organizations, even if they are not traditional commercial banks. This rule could have prevented the failure of Lehman Brothers from being so disruptive. It also may have encouraged the FDIC to unwind larger firms like Merrill Lynch or AIG rather than pushing them into shotgun mergers or bailing them out.

Dodd-Frank did not address the influence of the GSE's on mortgage lending and mortgage quality. By leaving Fannie and Freddie intact and under government conservatorship, the bill failed to remove one of the chief causes of the housing bubble, the deterioration of loan quality, and the ultimate source of losses on Wall Street and elsewhere. Furthermore, the bill does not make any serious attempt to reduce the size of the largest financial firms. They are subject to greater prudential regulation, but there is no tax or significant increase in capital requirements that would encourage

these firms to slim down, reduce their risk exposure, and become less systemically important.

Many of the new rules give the CFPB and the Federal Reserve greater control over policies and practices that had little or nothing to do with the crisis itself. The Volcker rule attempting to partially reinstate Glass-Steagall is one example. Proprietary trading by banks was not a major source of instability or failure during the crisis. Another example of greater control is restrictions on debit card transactions and fees. Regulators did not attempt to justify these rules on the basis of promoting financial stability. Instead, these restrictions are part of a host of new rules created to “protect” consumers from predatory lending and abusive financial practices.

Another policy enshrined by Dodd-Frank was that of “stress testing.” Regulators began experimenting with stress testing in 2009 as a way to evaluate how much financial institutions were at risk of illiquidity or insolvency if various shocks to the economy occurred. There was a great deal of controversy around stress testing because no one knew how accurate the tests would be and it was ambiguous what “passing” a stress test required. There was also disagreement about the models and assumptions used to run the stress tests, with banks running their own models and regulators running a different set of models.

The primary motive of Dodd-Frank’s chief architects and the Obama administration was to create a “New New Deal.” Doing so required sweeping overhauls of the whole financial system, not just fixing a few loopholes or problems. This rapid increase in regulation and scrutiny by regulators choked the creation of new credit in the economy. Economists describe this as regulatory “credit rationing.” Even though banks saw their balance sheets improve significantly in the years following the crisis so that they felt comfortable issuing new loans, they faced new and often vague lending restrictions which limited how much credit they could create.

Credit rationing undermined the goals of the Federal Reserve’s quantitative easing programs and interest rate targets. The Fed wanted to stimulate economic growth and employment by flooding the market with liquidity. To do so, it engaged in quantitative easing, which meant buying hundreds of billions of dollars of assets. Before 2008, the Fed had always bought Treasury debt when engaging in monetary policy. During and after the crisis, however, it began to buy the debt of Fannie Mae and Freddie Mac. It also began to buy hundreds of billions of dollars of MBS.

Because of its interventions during the crisis and its subsequent rounds of quantitative easing (QE), the Federal Reserve’ balance sheet exploded. The Fed holds close to five trillion dollars in assets—more than six times

what it held before the crisis. This explosion in assets was matched by a corresponding explosion in liabilities, namely bank reserves. Now that the Fed pays interest on bank reserves, its ballooning balance sheet has significant implications for Fed profitability and its remittances to the Treasury as interest rates rise. The explosion of the Fed's balance sheet through large-scale asset purchases has affected the type and maturity of assets held within the banking system, which in turn has affected banks' willingness to make loans and the interest rates at which they do so.

Another consequence of flooding financial markets with liquidity was pushing the federal funds rate nearly to zero. The Fed engaged in zero interest rate policy (ZIRP) for many years after the crisis in order to stimulate lending and economic activity. They also justified their "loose" monetary policy by pointing out that inflation was low and that the velocity of money had declined. Only in the past few years has the Fed moved away from ZIRP and begun raising the federal funds rate. Although it is difficult to predict the exact long-term consequences of keeping interest rates near zero for almost a decade, odds are they will not be good.

Many economists were certain that the explosion of the monetary base on the Fed's balance sheet in 2008, and the unprecedentedly low federal funds rate, would spark inflation and possibly hyperinflation. Yet after ten years of low inflation, it looks like that prediction was naïve and missed other important dynamics such as credit rationing, low demand for credit, and the risk-free alternative of receiving interest from the Fed for holding bank reserves. Still, it is unlikely that having artificially low interest rates for so long has not affected huge numbers of investment decisions, created another bubble in housing prices, and added many other distortions to the economy. Only time will tell exactly where these problems manifest.

Besides contributing to reflating the housing bubble, this period of extremely low interest rates has led to one of the most striking periods of corporate acquisitions and mergers ever as over \$20 trillion worth of deals have been made over the past decade. While we haven't seen any massive mergers in the financial sector after the crisis, the largest banks are still very large. The ten largest U. S. banks have well over half of the U. S. banking system's assets. Even more frightening, however, is the decline in new banks entering the financial industry. From 1997 to 2007, an average of 150 new banks entered the industry every year. Since 2009, 36 new banks have entered the industry. Total. That means the average has dropped from 150 a year to 4 a year. Any economist can tell you that such a phenomenon is troubling. The most important part of a healthy competitive market is the ease with which new firms can enter and compete with existing incumbent firms. In banking at least, this entry

seems to have dropped off a cliff due primarily to massive and onerous new regulation.

Employment and output trends

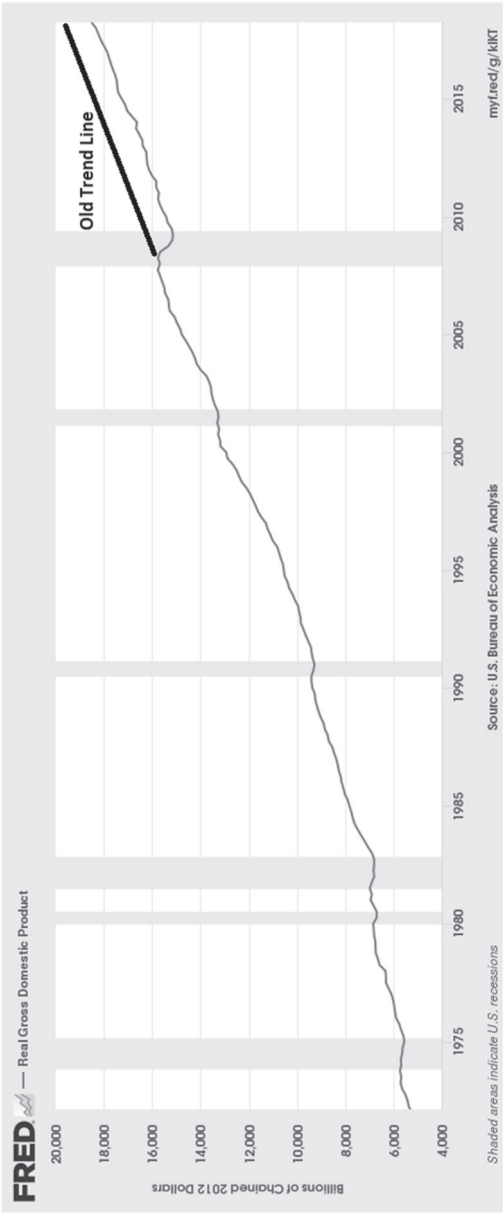
Besides the increase in regulatory burdens and how those changes have affected the structure of the financial industry and the consolidation of corporate America, the 2008 financial crisis has had more direct effects on the lives of average Americans. It is worth reviewing some data regarding trends in economic growth, employment, and productivity. The 8-10 years following the crisis have been described as the “Great Stagnation” by more than one economist. Instead of the Great Moderation of the 1990s with moderate to high economic growth, high levels of employment, and significant gains in worker productivity, the Great Stagnation has seen slow wage growth, slow employment growth, and slow economic growth.

Economic growth following the 2008 crisis and recession was unusually low. Normally after times of recession or crisis, the economy rebounds quickly. This is why an analysis of the past 50 years shows that despite having over half a dozen recessions, the long-run growth trend of the economy remains steady. But if you look at that trend line following the 2008 crisis, you discover an anomaly. The economy does not return to its previous trend line (Figure 9.2). Instead, it returns to a parallel, but decidedly lower, trend line.

Returning to a lower trend line after the crisis means the nation will be poorer than it otherwise would have been without the crisis. Although the dip looks relatively modest, a smaller base for growth means that this difference is compounded over time. Another way to look at it is that the U. S. has “lost” several years of output – they’ve simply vanished as the U. S. economy is multiple years behind where it would have been if it had continued along the previous trend line.

Slower job growth has been another practical consequence of following this lower trend line. Although unemployment has declined to historically low levels, there are long-term consequences from the high levels of unemployment that persisted for several years. Economists have become increasingly concerned about the decline in labor force participation and underemployment. Not only did people who lost their jobs during the crisis have a harder time finding a new job, many of them stopped looking for a job altogether.

Figure 9.2: Lower GDP Trendline After Crisis



This has created other negative consequences from higher rates of mental illness and suicide to rampant opioid and drug abuse. Having fewer people in the workforce, especially prime age men, has significant implications for the structure of families and communities. Fewer men working is related to rates of marriage, presence of fathers in the home, weakening ties and social mores in the community. Obviously, the financial crisis did not create all of these problems. They deep and complex phenomena that have been developing for many decades. However, the crisis appears to have accelerated them.

Table 9.1 records real GDP and real GDP per capita growth over the past ten years. The average growth of GDP over the whole period was 2% annually. Per capita GDP increased by 1.4% annually on average.

Table 9.1: Growth in GDP Post-Recession

Date	Real GDP	Growth	Population	Per Capita
2009-04-01	15134.117	-3.90%	306866	\$49,318.32
2010-04-01	15557.277	2.80%	309468	\$50,271.04
2011-04-01	15825.096	1.72%	311763	\$50,760.02
2012-04-01	16198.807	2.36%	314041	\$51,581.82
2013-04-01	16403.18	1.26%	316251	\$51,867.60
2014-04-01	16830.111	2.60%	318599	\$52,825.37
2015-04-01	17397.029	3.37%	320972	\$54,201.08
2016-04-01	17622.486	1.30%	323326	\$54,503.77
2017-04-01	17995.15	2.11%	325640	\$55,260.87
2018-04-01	18507.2	2.85%	326767	\$56,637.30

With respect to unemployment, there are many ways to look at the data. Critics of the Obama administration stress how long it took for unemployment to decline. Although unemployment peaked at 10% in October 2009 for one month, the unemployment rate remained at 9% or higher for two and a half years – from April 2009 through September 2011. On the other hand, those who think the Obama administration was

responsible for averting the second Great Depression can pat themselves on the back for a job well done. Unemployment rates hit 20% in the United States during the Great Depression and took more than a decade to recover fully. Compared to that, a few years between nine and ten percent employment looks quite good.

This is why it is critical to have a basic grasp of what caused the Great Depression, what happened during the 2008 financial crisis, and how similar they were. As I have argued in this book, the financial crisis was largely driven by deteriorating loan quality matched with artificially low interest rates, regulatory pressure to issue more subprime mortgages, and misregulation of the financial sector in general. Government policy was at the heart of this crisis – and government interventions during the crisis made it worse.

The Great Depression shared a few of these characteristics but differed in many important ways. Although there is no consensus on the Great Depression overall, most economists agree that the massive Smoot-Hawley tariff, which increased tariff rates on thousands of goods, contributed as did the famous stock market crash of 1929. These two factors triggered widespread panic and led to reductions in investment and employment. However, this would likely have been a run-of-the-mill recession if it hadn't turned into a massive banking crisis. The story of the severity of the Depression is one of catastrophic failure in the banking industry.

As the economy began to decline in the wake of Smoot-Hawley and the stock market crash, banks began facing increasing demands for redemption as people withdrew their deposits. Shockingly, the Federal Reserve began tightening the money supply and refused to supply the banking system with more money even as demand for withdrawals spiked. Ben Bernanke himself acknowledged on behalf of the Fed over seven decades later that this had been a catastrophic mistake. Raising interest rates and refusing to provide liquidity during a panic led to classic Jimmy Stewart bank runs as an increasing number of people lost confidence that banks would be able to honor their obligations.

Thousands of banks failed in the early 1930s, creating further panic, reducing liquidity and investment, and leading directly to the collapse in output and spiking of unemployment. There was no FDIC to insure deposits or to unwind these failing banks. Instead, people's deposits were simply frozen until the banks could go through the full bankruptcy process. Even this disastrous failure of the banking system would have been temporary if the federal government had not intervened in the economy in ways that deepened and extended the depression.

Counterproductive policies in the 1930s that prevented recovery include: wage and price controls that created widespread shortages and surpluses, higher tax rates that discouraged production and investment, massive government spending programs that crowded out private activity in the market, and a huge increase in burdensome regulations, especially in the financial sector.

If anything, then, most government responses to the 2008 crisis made it more like the Great Depression, not less. They contributed to panic and uncertainty. They increased regulations, making the market less dynamic and thereby slowing growth and recovery. In addition to thousands of new rules under Dodd-Frank, Congress increased the complexity of the healthcare industry through the Affordable Care Act. There was also relentless growth in other regulations as various government agencies created new rules from carbon dioxide emissions to renewable energy requirements to aviation guidelines to poverty reduction programs.

Some people argue that the slow recovery after the recession was due to the fact that it involved a financial crisis. Historically, recoveries after financial crises tend to be slower than after “normal” recessions. However, there is a wide variation in recovery rates based on public policy. Perhaps 2008 would not have had deep financial crisis without government errors. That’s why we have been carefully examining many misguided policy responses during and after the crisis. This is an important part of my arguments about counterfactuals in the previous chapter.

A major limitation of the world we live in is that we can’t know what would have happened ‘if the world had been different than it was.’ We can speculate, but it is difficult to find definitive proof. I’ve given reasons why current speculation about what would have happened without the bailouts and TARP (namely that the world as we know it would have ended) is just that, speculation. Furthermore, it doesn’t even seem to be plausible speculation given how events unfolded. TARP only benefited a few major banks – for the rest it was unnecessary, damaging, and expensive. AIG and AIG Financial Products could have failed without bringing the market to its knees. Its insurance subsidiaries were protected legally. Its counterparties would not have had to write down significant losses on their policies. They would simply have lost their current insurance provider and would have to find another insurer in the market at a more accurate market price.

So, back to evaluating unemployment numbers. “Government-induced stagnation” describes the last decade better than “narrowly avoided Great Depression.” No one in 2009 thought the Great Depression was right around the corner. Even the Obama administration, which bought Keynesian

economics from start to finish, didn't think Depression was a possibility. Even as they advocated the largest peacetime stimulus program in U. S. history, their worst-case forecasts for unemployment didn't exceed ten percent. The decision to pass the American Recovery and Reinvestment Act was not about averting a depression. It was about accelerating recovery and economic growth while limiting unemployment. According to those goals, it would be hard to characterize the stimulus as anything besides a failure. Economic growth remained slow and unemployment rose higher than White House advisors had predicted. Certainly, many counterfactual justifications have been offered since – “things would have been much worse,” “the economy was even weaker than we knew,” etc. Such justifications assume what they are trying to prove.

Instead of high growth, we got stagnation and slow improvement throughout the Obama administration. After unemployment stayed above nine percent for two and a half years, it began to fall steadily. But even this steady decline dawdled. It took another full year to drop below eight percent. And another year to drop below seven percent. Defenders of the Obama administration point out that the length of sustained improvement in the economy is unusual. Indeed, it is. And they point out that unemployment declined from ten percent to below five percent during his administration. Indeed, it did.

Although the length of continuous economic growth is impressive—the rate of growth is not. It has been slower than other post-recession periods. But it has also been slower than average economic growth in the U. S. in general. And the important caveat to the unemployment numbers is the decline in labor force participation. Many people were no longer counted as unemployed, not because they had found a job, but because they were no longer seeking employment.

Changes in public opinion of markets and finance

Just like the Great Depression, the 2008 financial crisis and the Great Recession will impact people's perspectives on government, financial markets, and free market economies for decades to come. There are many ways to think about these changes in public opinion. First, there has been a significant shift in how younger people (those under 30) view the market economy. Second, there has been increasing discontentment and distrust of Wall Street and Washington D. C. Third, there has been a significant reaction at all levels of society against free markets and free trade – which some mistakenly label as “neo-liberalism.”

Young People

No one who follows politics can forget the remarkable campaign run by Senator Bernie Sanders in 2016. Despite identifying as a socialist and being an elderly white man, Sanders' strongest group of supporters were young people, folks from twenty to thirty-five. Why did so much of this demographic rally behind Sanders? Hillary Clinton ostensibly shared many of their policy views and concerns. She was experienced and had been in the game for a long time. Why did so many "feel the Bern" instead? Fallout from the 2008 financial crisis had a lot to do with it.

Consider how young people have spent most of their adult life in a post-crisis world. They would remember parents losing jobs, houses being foreclosed on, family and friends having trouble making ends meet, slow uneven economic growth, and so on. In their eyes, the market system failed, or at least has not brought the prosperity and dynamism its advocates claimed it would. Why should there be such a large gap between the richest and the poorest in society? Why should bankers live so well when many have a hard time getting by? Wall Street and finance hardly seem like beneficial forces in society. Bernie Sanders had compelling answers to these questions. He was able to tap into the concerns of this demographic.

The other reason young millennials seem so attracted to Sanders' democratic socialism is because they think the current system of corporations influencing politics to their advantage is broken. Instead of reforming at the margins, which they are skeptical can even happen in a society dominated by corporations, major, significant, even revolutionary, reforms are necessary to change the system itself. Their distrust of the establishment runs deep. Clinton, despite her progressive stance on many issues, represented the establishment stretching back before the crisis.

Contrast that mindset with those who started their adult years in the late 1980s or earlier. They saw relatively consistent and strong growth in the economy, relatively low unemployment, incredible technological advances, and general stability in their society. These were linked explicitly to trade liberalization internationally and "light" regulation domestically. Living in that era gave one a significantly different perspective on the market system and the role of government.

Occupy vs. Tea Party

Two opposite but related movements also formed in the wake of the 2008 financial crisis. The first movement had a great deal in common with

the millennial generation backing Sanders: Occupy Wall Street. This movement took aim specifically at large banks on Wall Street that they thought had duped and exploited the American people. They were outraged that large banks were paying their employees bonuses even as they were receiving billions of dollars in aid from the federal government.

Those in the movement believed all the worst things about Wall Street one could find in the media, including fictional media. Gordon Gekko was not just a fictional representation of the extreme greed that could characterize a few bankers who had sold their conscience. Instead, he represented the quintessential Wall Street banker—heartless, ruthless, and greedy. Conspiracy theories abounded, each one involving nefarious bankers or corrupt politicians, and sometimes academics (such as those portrayed in *Inside Job* or *Margin Call*), who knew their practices would eventually cause devastation but continued them anyway because they profited handsomely. Occupy Wall Street protestors wanted to hold bankers and politicians accountable for the corruption and ruin they foisted on ordinary Americans. Though there was little direct success to show for their efforts, Occupy Wall Street has left an enduring impact on society and on politics.

The Tea Party Movement mirrored Occupy Wall Street in some ways, but with radically different views of Wall Street and Washington. They were also upset about the state of things on Wall Street, but their analysis focused on the corruption and enabling coming out of Washington D. C. Members of the Tea Party were upset, not about banking, but about bailing out banks. They were upset with what they perceived as runaway government spending and massive growth in the scope and scale of government in the early years of the Obama administration.

These two movements were both sparked in large part by the 2008 financial crisis and the various consequences that followed. Both were largely populist movements outside of traditional political channels. It's not a stretch to see the origins of the populist campaigns of Sanders and Trump in 2016 in these two earlier movements. People's responses to favoritism and corruption during the 2008 financial crisis paved the way for later political and social polarization, the world we live in now.

Skepticism of Markets and Free Trade

Finally, and of most concern to me as a professional economist, there has been a noticeable shift away from relatively settled economic positions among the general public. Both sides of the political spectrum have found aspects of markets to blame for the crisis and for the subsequent political

corruption and economic stagnation. The left generally views deregulation and too much free-wheeling capitalism as the source of the trouble. Bankers, or corporations more generally, can't be expected to care about or advance the public good. They can't be expected to be concerned with the social or environmental consequences of their actions. The only way to hold them accountable, the only way to prevent them from exploiting ordinary people, is to restrict their activities through extensive regulation. Some Sanders' supporters go so far as to say most corporations should be abolished entirely in favor of more extensive government programs.

The enemy, according to these folks, is neo-liberalism. Their story of how we arrived at our current unsatisfactory state of the world runs back into the early 1990s. Neo-liberal policies under Bush senior set in motion pushes for deregulation culminating at the end of Clinton's administration and the beginning of George W. Bush's administration. Besides creating the 2008 crisis, this wave of neo-liberalism also led to undue influence by capitalism and capitalists in developing countries across the world. The result has been rising inequality within countries and between countries. Besides more regulations to reign in companies, folks on the left argue for extensive redistribution of existing wealth to level the playing field.

On the right, people have grown increasingly concerned about governance by "elites," whether in Washington, New York City, or Brussels. They view the neo-liberal order as benefiting large companies and wealthy individuals at the expense of ordinary blue-collar workers. The "ideology of free trade" has taken over the world and left many people and many subcultures exposed to brutal competition that disrupts their way of life. In the U. S., many see this impact in the declining rate at which working age men are employed. They blame free trade and globalization for the decline in manufacturing jobs and the decay of many communities. The opioid and suicide crisis, in this story, is simply another consequence of too much trade that benefits poorer countries more than the U. S.

On top of that, many people on the right condemn neo-liberal trade policy and elites from a moral dimension. Globalization goes hand in hand with multiculturalism and cosmopolitanism. So, advocates of free trade cannot care greatly about their own country. Instead, they claim to care about "people" in a generic sense no matter where they are, but that sentiment is only a front for the fact that they have benefited tremendously from globalization. Free trade advocates do not seem to have much reverence for culture or traditional ways of living in community either. As the world becomes increasingly globalized, people fear that local communities

will begin to disintegrate into the mass culture of Hollywood, Silicon Valley, and New York City.

Conclusion

The 2008 crisis left its mark on society. We have a host of new rules and restrictions governing financial and healthcare markets. The composition of the labor force has changed, impacting families and communities. People's views of the economy, government, and polarization characterize the political process, as does heightened skepticism of markets, trade, and globalization. This is all part of the legacy we have ten years later.

CHAPTER TEN

WHAT WE HAVE (NOT) LEARNED

I wrote this book to correct defects in the conventional wisdom about the 2008 financial crisis. Unfortunately, most people have learned the wrong lessons about markets, deregulation, Wall Street, mortgage finance, and government regulation. This has led to misguided policies that fail to address the most important causes of the crisis. If we don't set the record straight and understand the mechanics of financial crises better, we are setting ourselves up to repeat the 2008 financial crisis.

Wrong lessons

Irrational Exuberance

The idea that people are irrational is not new. John Maynard Keynes popularized the notion by giving “animal spirits” a prominent role in investment. His ideas took the economics profession by storm in the 1940s and 1950s. Before long, his thinking dominated conversations about public policy too. There was a significant counter-revolution against Keynesianism in the 1970s led by Milton Friedman and his colleagues. Later followers of Friedman argued that rather than modeling people's behavior as irrational, we should model their behavior as being perfectly rational.¹ Even in the midst of the counter-revolution, a new branch of economics, behavioral economics, began developing and continued to emphasize the role of non-rational psychology in human decision-making. The debates about human rationality have trended towards studying how the context of choices affects one's decisions.

The point is not to rehash these particular debates, but simply to look at how irrational exuberance as a theory of the crisis has become prominent and widely accepted, despite being somewhat misleading. It is true that optimistic expectations can generate self-reinforcing cycles that lead to asset bubbles—even with no government manipulation or regulation.² But how large and widespread those bubbles can become, as well as the effects

created when those bubbles pop, is a different story. It turns out that experience, information, and liquidity all affect the size and duration of asset bubbles.

Shiller has made a strong case that people have self-reinforcing positive expectations during asset bubbles. These expectations appear irrational because they diverge from the underlying fundamental economic conditions in unsustainable ways. An overly simple analysis would run along the following lines: obviously people's expectations were irrational and unsustainable because there was a housing bubble. But they didn't know there was an asset bubble at the time. Perhaps things could have turned out differently and if they had, there would be no talk of irrational exuberance. It is only in hindsight that we can tell people were wildly optimistic.

However, we cannot simply dismiss Shiller's theory as being due to hindsight bias. He wrote about the dot com asset bubble *before* the bubble popped. He wrote about the housing bubble *before* housing prices went over a cliff. His analysis seems to be free of hindsight bias. But being able to diagnose or describe a disease is not the same as 1) knowing what caused it and 2) knowing how to treat it. Shiller's analysis of the psychology behind people's active participation in asset bubbles is excellent. But if we conclude that more rules and restrictions are the way to prevent future asset bubbles from forming, we'll have made a mistake.

Not all asset bubbles are made equal. Yes, some are catastrophic for individuals and the economy more broadly. But most asset bubbles are relatively short-lived and harmless. The differences between the two types involve *how* individuals participate in the asset bubble and the *connection* between the asset bubble and the banking system. One of the earliest and most famous asset bubbles was relatively short-lived and had little effect on the overall economy. The first major asset bubble we have on record involved Tulips in the Netherlands in the 1600s.

The worst part of the Dutch tulip bulb bubble occurred over the course of approximately eight months. This period saw rapidly rising prices for rare tulip bulbs. The price of the rarest of these bulbs sometimes exceeded the value of people's houses. Tulip mania, as it was called, has fascinated historians for generations. What drove this massive spike in prices for something as mundane as a tulip bulb? Shiller's analysis of irrational exuberance can explain this story well, but it will leave out two of the most important factors; factors that are also relevant to the 2008 crisis.

First, it leaves out the role of credit in fostering tulip mania. Tulip prices were only able to rise in the extraordinary way they did because people could purchase them with small amounts of cash. Although the

price of a tulip bulb might be three months wages, the buyer would usually enter a contract with the seller to pay one day's wages at the time of the purchase, with the rest of the money due upon delivery of the tulip. That buyer might turn around and sell the bulb to someone else for a price of four months wages, but only require one and a half day's wages at the time of the sale. Using today's average monthly wage of ~\$4500 can illustrate this phenomenon. In the scenario above, the price of the tulip bulb might jump about \$4500 from \$13,500 to \$18,000. Yet the amount of cash needed to complete the transaction would only increase by a hundred dollars or so from \$200 to \$300. One hundred additional dollars cash supported a \$4500 increase in price!

Low down payments and paper credit led to rapidly rising leverage as people "borrowed" greater and greater sums to purchase increasingly expensive tulip bulbs. But notice something important about this borrowing, it did not involve the transfer of any real resources. Banks were not lending people money to buy tulip bulbs instead of lending merchants money to outfit ships or farmers money to buy seed and equipment for their farms. This borrowing was simply paper credit created between the buyer and the seller out of nothing other than an agreement to pay a certain amount at a future date. There was little crowding out or distorting of the general economy.

When the bubble popped, the price of tulip bulbs dropped rapidly. How were the contracts resolved? Something called cascading defaults occurred. The most recent buyer refused (or was unable) to buy the tulip at its highest price, let's say a year's wages. The seller waiting for payment had most likely also been a buyer not long before. Perhaps he bought the bulb at a price of ten months' wages. He would then default on his "loan," which continued the process. Some money certainly changed hands, but there were massive write-offs through these cascading defaults. Ultimately very little in the real economy changed.

The second important factor behind the tulip mania was how it ended. The bubble peaked right before the tulips sprouted out of the ground in the spring. Once the tulips sprouted, prices began to fall rapidly because people could finally see just how many tulip bulbs were out there. They discovered that there were far more tulips available than they had believed, which meant the prices they had been exchanging tulips at were far too high. They had been acting, not only on incorrect expectations, but also on significantly incorrect information about how many tulips there were in the market.

Tulip mania illustrates important gaps in Shiller's theory. Although the psychology behind asset bubbles seems to match his account closely, the

source of the bubble and its consequences can be found through enabling government policy. If people had to pay the full price of houses they purchased, the housing bubble would never have formed because people would not have had enough money to pay the high prices. That logic continues with mortgages and credit. If no one had been allowed to buy a house for less than 20% down, the housing bubble would not have formed. The huge expansion of credit with lower down payments allowed people to bid up housing prices without having to put much cash down, which created the housing bubble just as it had created the Tulip Bubble four hundred years earlier. Although declines in down payments were likely the most important force behind the bubble, other declines in underwriting standards, from lower credit scores, not verifying income or assets, and higher debt to income allowances also enabled greater speculation in housing. And of course, the interest rates at which people can borrow affected how much house they could afford.

But unlike the tulip mania, the housing bubble resulted in massive economic dislocation. Housing purchases were funded through the banking system. As more of the available credit in the financial system went towards the housing sector, less went towards technology, manufacturing, and other sectors. The housing bubble, therefore, created distortions in the economy by drawing real resources away from other sectors. It also created distortions because the spike in mortgage defaults created widespread losses that reduced most financial institutions' ability to lend to other sectors in the economy.

The housing bubble popped in a manner similar to the tulip mania. In Holland, rapidly rising tulip prices were the result of incorrect beliefs and incorrect information about the supply of tulips. It turned out there were far more tulips than anyone had realized and that led to the significant price correction. The housing bubble and the financial system went through a similar kind of realization. There were huge numbers of houses entering the market at the peak of the bubble. More important still was incorrect information about mortgage quality that nearly every analyst used. Rating agencies, banks, regulators, home buyers, none knew the extent and consequences of proliferating subprime and Alt-A mortgages in the system in part because the two largest holders of these types of mortgages did not disclose them properly.

Investors and analysts were blindsided by the crisis, not simply because of irrational exuberance, but because they clearly lacked important information. The crisis was so shocking in part because it diverged significantly from the expectations people had formed based upon incorrect information. No one could anticipate the complex ways in

which a variety of regulations would interact to magnify losses throughout the financial system.

Shiller to the contrary, we should not walk away from the crisis thinking that most people act irrationally and should have their options constrained by regulators. In fact, individuals and companies tended to act quite rationally given their information and expectations. The information and expectations were flawed, not people's ability to form judgments. But this leads to another serious misunderstanding of the crisis—that the flawed information and expectations fueling the bubble were the result of unregulated market forces.

Market Failure

A deeper concern people have drawn from the crisis is that markets are inherently flawed. The idea here is that bad or perverse incentives naturally exist in the market, and especially in finance, leading to fraud, abuse, and exploitation. If this concern is accurate, it raises grave doubts about the merits of a free economy and even of a free society. There are several dimensions to market failure concerns in the crisis.

First, people condemn the “originate to distribute” business model. Mortgage originators issued huge quantities of low quality mortgages for the sole purpose of distributing them. They were unconcerned about the quality because they were passing them off to other parties. By distributing the mortgages, they avoided all the credit risk of default and foisted it onto someone else. The parties buying their mortgages bundled them into MBS and CDOs, which were then sold to investors around the world. At each stage, the risk was passed on to a different party.

“Of course, we will get low-quality mortgages,” the reasoning goes, “if those issuing the mortgages don't have any ‘skin in the game.’ What do they care if the loan defaults in a matter of years or even months? The process of distributing and securitizing mortgages created perverse incentives. No one will look carefully at the underlying mortgages.” There is a kernel of truth to this story that makes it easy to accept: almost no one did look carefully at the underlying mortgages until it was too late.

But even that is not quite fair because there were analysts involved in this whole process. The question is whether they knowingly turned a blind eye, or whether they were genuinely ignorant of what was happening. We can see cases of both. Almost no one on Wall Street thought that these mortgages and these securities were bad investments. What you see in *The Big Short* or the *Inside Job* represents the views of a small set of investors no more than two and a half years before the peak of the crisis. They knew

many of these mortgage derivatives would end up being worthless, but most people didn't. Did Bear Stearns fail because it made lots of money selling risky assets to its customers? No, it failed because it held huge amounts of these risky assets on its own books. The same is true with Lehman and Merrill Lynch, with Wachovia and Washington Mutual, with Citibank and Bank of America.

Although some folks on Wall Street made enormous amounts of money during and after the crisis, it was usually because they started with a stronger financial position (like JP Morgan) or they caught on to what was happening before most other firms did (like Goldman Sachs). But many people on Wall Street lost money or their jobs. Although the leaders of Bear or Lehman were not impoverished by their failure, they still saw massive declines in their net worth. If they knew what they were doing, passing hot potato securities to investors, their firms would not have crashed and burned so spectacularly.

Journalists like to highlight the excessive lifestyles and greedy mindsets of Wall Street traders, executives, and bankers. No doubt there is a great deal of greed driving many folks on Wall Street. But it is harder to connect this greed with creating the crisis. Did Wall Street somehow become greedier in the early to mid-2000s than it had been in the 1990s or 1980s? Maybe, although it is unclear how we could measure that or what could have caused it. At best, those who blame the crisis on greed can simply point to how good times and success rarely lead people to ask hard questions.

People often think that because something "works" it must be right. John Allison calls this philosophy the disease of "Pragmatism." Mortgage financing and securitization worked beautifully for almost a decade before the housing bubble popped. People were buying homes, origination companies were collecting fees, securitizers were making a nice spread, and investors had access to a new asset paying high returns relative to its credit rating. Perhaps greed helped perpetuate this system, but it didn't manufacture it out of whole cloth.

Mortgage origination companies could only issue new loans, including ones of poor quality, if they had willing buyers in the market. They couldn't force Fannie Mae, Freddie Mac, or Bear Stearns to buy their mortgages. They had to persuade them. And at least with respect to Fannie and Freddie, they wouldn't have been able to sell them these low-quality loans in the 1990s. It was through Congressional action and regulatory pressure that Fannie and Freddie explicitly began lowering the quality of loans they would purchase and securitize. In the process, Fannie and Freddie reshaped the mortgage market and the mortgage derivative

market. Investment and commercial banks were eager to get in on the action and so followed the industry standards set by the two large GSEs.

Greed causes problems, but it is not inherent to a free market system. In fact, a free market system may be the best way to deal with the problem of greed. It harnesses people's greed in ways that benefit others because they can only make large amounts of money by providing valuable goods and services to others. Free markets also check greed because people can choose whom they do business with. They can avoid or punish folks who cut corners, fail to deliver, or charge exorbitant prices. The problems critics highlight in the market prior to 2008 are either not germane to the crisis or are actually distortions in the market created by government interventions. The problems created by government interventions represent the greatest unlearned lessons from the 2008 financial crisis.

What we should have learned

Misregulation is a big problem

The most important lesson we should have learned from the 2008 financial crisis is that misregulation can create huge unpredictable problems. The structure of current firms, the activities they undertake, the way they market their products, the way they compensate their employees—every element of their business—has been shaped by various regulations and laws. While markets in the U. S. are relatively free, particularly when compared to centrally planned ones, they are hardly examples of *laissez faire*. Government has intervened in markets from time immemorial. The question is not whether they intervene, but how much they do, in what ways, and to what effect. The crisis suggests we lack the ability to answer that question well.

Regulatory complexity has been increasing relentlessly since the beginning of the 20th century. But as those regulations proliferate, and then affect the decisions of individuals and firms, their effects become more ubiquitous and difficult to identify or understand. The basic structure of the financial industry prior to 2008 was built on major rules created during the Great Depression. The next crisis will be built on that structure plus the additional expansion under Dodd-Frank. While most people are simply overwhelmed by the quantity of rules they must comply with, the qualitative interactions of the rules, particularly from separate bills or enforced by separate regulators, will largely be missed entirely. For example, who would ever have thought that implementing new capital

requirements for commercial banks would make them *riskier* rather than safer?

Friedman and Kraus hammer the point of our inherent limitations in understanding the complex interactions of various regulations. Even the agencies making the rules can be completely ignorant of the potential consequences, as we saw with the mark to market rule, restrictions on which firms can be credit rating agencies, and the systemic weaknesses promulgated by the Basel accords or the Recourse rule. It's unreasonable to expect any person or group of people to track regulations across industries and time and be able to analyze all the potential unanticipated consequences of regulatory interactions.

The failure of stricter, more complex, more nuanced regulations to prevent a massive financial crisis should give pause to those who argue that more rules are the solution. If the most sophisticated regulators and rules failed to stop the crisis, or in fact contributed to it, what kind of regulation should we have? More detailed rules and requirements clearly haven't been a successful answer in the past and are not a good answer for the future. Instead, we need to think more carefully about market forces, accountability, and clear rules that contribute to open markets.

Moral hazard is a big problem

Besides the inherently unknowable interactions of thousands upon thousands of regulations, heavy regulation damages the market process itself. The two major consequences of concern are that market participants become less vigilant in highly regulated markets and that firms believe they will be protected or bailed out by governments. Both problems reduce the effectiveness of markets by reducing personal responsibility on the part of both consumers and producers.

Because of the Federal Government's long history of bailing out creditors of important firms (especially financial ones) regulators have locked themselves into always bailing out the creditor. Not doing so would upset market expectations so much that there could be a run on the entire financial sector by those who have been lending it money.

Although moral hazard is not as prevalent as some commentators suggest, it still played an important role in the crisis. Traders on Wall Street all believed in the "Greenspan Put." They operated under the assumption, not that they couldn't lose money, but that the government would always step in to prevent a total catastrophe. One could argue that they viewed the Federal Reserve and the Treasury as providers of catastrophic market insurance. Traders and Wall Street executives, and

more importantly their creditors, calculated much milder worst-case scenarios given this backstop. The author Michael Lewis describes this kind of mindset while reporting on a mortgage conference in Las Vegas in the spring of 2007, “These people believed that the collapse of the subprime mortgage market was unlikely precisely because it would be such a catastrophe. *Nothing so terrible could ever actually happen.*”³

Governments tend to create more problems than they solve

Another lesson most people have failed to learn from the crisis is that governments often create more problems than they solve when they intervene haphazardly in markets. There is a long and extensive literature on this topic stretching all the way back to Adam Smith. Economists have repeatedly pointed out that government officials rarely possess superior knowledge to market participants. Furthermore, the goals of government officials often do not align with those of individuals in markets. Austrian economists Ludwig von Mises and Friedrich Hayek described these two issues in their debates over socialism in the 1920s and 1930s.⁴ They criticized advocates of central planning and market socialism for advocating the impossible. Socialist planners, they claimed, could never overcome the knowledge problem or the incentive problem.

These problems apply to more than full-blown socialism. They apply to any government action. Although these problems are not insurmountable in certain limited contexts, they represent a high bar that new laws and regulations should meet. There are countless examples of misguided government policies leading to bizarre or detrimental outcomes in markets. One set of issues can be categorized as the “Bootleggers and Baptists” problem.⁵ This problem centers on perverse incentives. New policies are often supported by two or more interest groups that seem to have very little in common, such as Bootleggers who sell alcohol illegally and Baptists who want to ban the sale of alcohol.

Although these two groups have wildly varying views on the appropriateness of consuming alcohol, they both advocate banning alcohol sales on Sunday—the Baptists because they want fewer people to drink, the bootleggers because they don’t want to compete with legal liquor stores. A more recent example of this phenomenon can be found in environmental regulations for new coal power plants. Environmentalists advocate for stricter emissions requirements. Existing power plants advocate stricter emissions requirements too, *but only for new power plants*. Stricter emissions standards significantly increase the costs of building and operating a power plant. By imposing these restrictions on

new power plants, environmentalists get less emissions per new plant. But the old power plants also benefit because these new standards make it more difficult for new plants to enter the market and compete with them.

The Bootleggers and Baptists story illustrates unusual bedfellows in housing and banking policy in the early 1990s. Community activist organizations and aggressive commercial banks both petitioned the Federal Reserve to allow the aggressive banks to expand and acquire other smaller banks. The interest of the acquiring bank is obvious. But what's in it for these community activist organizations? Well, they basically extorted significant funds from the acquiring banks in exchange for their support.

Another set of incentive problems can be identified as regulatory capture. In a cruel twist of irony, regulatory agencies often become "captured" by the industries they regulate! In this situation, the regulators engage in behavior that benefits their industry. The bigger and better the industry is, the more important the regulator. Furthermore, often the only people who know the industry well enough to regulate it properly are people who work in the industry. This leads to the "revolving door" phenomenon where people from the industry will work for the regulator, then go back and work for the industry.

Regulatory capture creates at least two problems. The first is obvious. Regulators often do not police their industry very well, especially when the industry and economy are doing well. The second problem is that regulators create costly rules that make doing business more expensive but then help incumbent firms by restricting competition through rules or barriers to entry. These barriers profit incumbents at the expense of new firms and customers.

The Bootleggers and Baptists phenomenon and regulatory capture are just some of the subtle problems involved in regulation. The elephant in the room, of course, is lobbyists who work tirelessly to pass laws and rules benefiting particular firms at the expense of society. The role of special interests in Washington has always been an issue, though it has become increasingly prominent and important as the amount of money and influence wielded by policymakers in Washington has grown over the past half-century.

Government interventions harm the economy by introducing uncertainty about how markets will work in the future or what future rules might be. They can also create perverse incentives, both in terms of companies engaging in unproductive behavior to comply with various rules and in terms of companies deciding that they will receive a better return from influencing government officials than from investing in factories or new

technology. Finally, government interventions tend to create market fragility and systemic risk.

Markets and investors hate uncertainty. Not knowing how certain projects or investments will be treated in the future is debilitating. High degrees of uncertainty make investment little better than gambling—you could hit it rich if new rules or policies don't affect your investment, or better yet subsidize it, but you could also lose huge amounts of investment in projects that are no longer feasible under the new rules.

Government intervention to rescue Bear Stearns in March of 2008 affected the expectations of investors and of executives in other investment banks that faced similar problems to Bear. Lehman Brothers' leadership did not aggressively search for a buyer between March and its bankruptcy in September. The biggest reason they were not acquired was because they thought the offers they received valued their stock at too low a price. But "too low a price" is relative. If Bear stock had been allowed to go to zero, Lehman's leadership would have been far more amenable to any offer greater than zero.

Companies can engage in defensive or offensive rent-seeking. If politicians and regulators can mess with the rules of the game easily, it is worth spending time and money to persuade them not to mess with the rules, or perhaps to mess with the rules but in a way that favors your business over other businesses. Peter Schweitzer has written extensively about how politicians will introduce bills, or threaten to introduce bills, to "encourage" companies to contribute to their campaign funds.⁶

Another form of perverse incentives encourages people to engage in certain types of behavior, perhaps in the name of safety, the environment, or fairness, that create negative consequences for others. Economists call this phenomenon a "negative externality." Extensive rules, particularly prescriptive ones, often make markets more fragile and thereby introduce systemic risk. Rather than having wide experimentation and varied business practices, some of which will succeed spectacularly, others will perform moderately well, others will perform poorly, and still others fail spectacularly, prescriptive regulations (like bank capital requirements for AAA MBS versus commercial loans) cause most or all firms to behave similarly. If it turns out the behavior involved ends up performing poorly, or failing catastrophically, you don't just have a few failures on your hands, you have an entire industry, or perhaps economy, on the rocks.

Markets are self-correcting if we are patient and let them work

Free markets have advanced people's material welfare more than any other institution or invention. They have led to the phenomenon economists refer to as the hockey stick. Despite Earth's population growing rapidly over the past century, the amount of wealth per person has grown even faster. For most of human history, per capita income was roughly similar. Whether you lived in 4th century Egypt, 12th century France, or 15th century Germany, your standard of life would have been similar. Obviously, there would be significant cultural and political differences, but the world would have been recognizable. If you took anyone from pre-1700 and placed them in a modern developed economy, they would hardly recognize anything and would be stunned by the incredible opulence of ordinary people.

Besides the historical evidence of free markets generating significant wealth and technological improvement, there is plenty of economic theory explaining why free markets are efficient and innovative. If we want to deal with the problems that created the 2008 financial crisis, we should try to introduce more free markets, not restrict markets further. On this point, we need to add some nuance. Free markets are not simply open spaces with no rules, laws, or norms. One of the mistakes made by the Bush administration in the build-up to the crisis is that they assumed government doing very little or nothing (at least from an enforcement standpoint) would allow the free market to work and police itself.

But the world was not one big free market in the late 1990s and early 2000s simply because many regulators limited their oversight and policing of mortgage origination companies. Extensive rules had already shaped banks' and investors' behavior in important ways. Though some regulators may have used a light touch under the Bush administration, others actively encouraged, and even required, Fannie and Freddie to reduce the quality of loans they purchased. A variety of government programs, insurance, and safety nets were also affecting people's decisions in the market. Nearly every economist agrees that if you insure bank deposits, you need to put some restrictions on their activities. Otherwise you provide a free ride for some banks who take their depositors' money and gamble it (perhaps literally) for the chance of incredibly high returns without bearing the downside if they lose.

Taking the line "markets will self-regulate" when those markets already have significant and continuing distortions, is naive. This "deregulatory" ethos among regulators was not the primary cause of the 2008 financial crisis, but it probably contributed. We need an entirely different approach, one that is truly market-oriented. Implementing this view requires

understanding that markets require certain conditions, such as a strong rule of law, a clear legal framework, good fraud and theft protections, profit and loss signals, and good bankruptcy rules.

Markets under these conditions are robust, efficient, and creative. They are not perfect. Perfection is not the right standard for any human institution. Instead, we want institutions that promote human flourishing by rapidly correcting errors, mistakes, and flaws. Free markets inherently do this. As Austrian economists have long emphasized, the market is a process, a process of discovering and using information to advance the ends of millions of individuals. That process includes discovering problems and then discovering methods of dealing with those problems.

Notes

¹ These include Nobel-prize winning economists Robert Lucas, Finn Kydland, Edward Prescott, and Thomas Sargent.

² Smith et al. (1988, 2001).

³ Lewis (2011), pg. 148 emphasis added.

⁴ Ludwig von Mises and Friedrich Hayek wrote a series of articles and books on this topic beginning in the early 20th century and continuing through the middle of the century.

⁵ Yandle (1983).

⁶ Schweitzer (2011).

CONCLUSION

WHAT SHOULD WE DO?

No book on the 2008 financial crisis would be complete without some recommendations of what we ought to do to prevent it from occurring again. My goal throughout has been to provide enough context, history, and analysis for the reader to be able to discuss policy solutions (and non-solutions) intelligently. As I've said from the start, the conventional wisdom is mostly wrong and misleading. Government policies implemented in the wake of the crisis have been justified by the conventional wisdom that deregulation, greed, and out of control markets created the crisis. As a result, a huge number of new regulations and new regulators have been introduced to restrain the financial sector. But that is the solution to an imaginary problem.

If the crisis was instead a perfect storm of misregulations creating massive distortions in the housing market and unexpected fragility in the financial system, adding thousands of new regulations is no guarantee that the problems have been addressed. In fact, these new regulations have likely laid the groundwork for another financial crisis as we now have thousands of new rules with unknown, unintended consequences—especially consequences created by the future interactions of seemingly unrelated regulatory rules.

Still, the crisis happened. People behaved badly: those borrowing, those lending, those securitizing, wall street CEOs, traders, regulators at HUD, the FED, and half a dozen other agencies. There is plenty of blame to go around! And going back to the pre-crisis status quo is not a solution either. We need to find a way forward with commonsense reforms that advance the efficiency, innovation, and robustness of financial markets in a way that contributes to widespread prosperity.

There are three steps to free market reforms that will improve the efficiency and safety of financial markets. First, we should simplify current financial regulation, which means shifting from complex requirements, which are largely enforced by bureaucrats with discretionary authority, to simple rules that promote accountability and transparency. Second, we need to begin removing the hundreds of government pushes, prods,

incentives, and other interventions in housing policy and banking. Finally, we should commit ourselves, in legally binding ways, to let the market work openly, including allowing large financial firms to fail.

My recommendations are simple in theory, but crafting specific rules and getting them through a heavily partisan Congress facing special interest lobbying is a formidable challenge. The volume of regulations and interventions to be repealed or streamlined is truly daunting. But if citizens begin to demand and expect market-oriented reforms based upon clear and simple rules that reward those who create value for their customers and punish those who don't, we'll begin moving in the right direction.

Get better rules

We can reduce the likelihood of another financial crisis by improving the rules by which the financial game is played. Complexity should be avoided. We want companies to succeed because they are serving their customers well, not because they are able to master complex rules and find ways to massage their investments to fit them. And complexity introduces further problems. Firms become rule-focused rather than principle-focused, which leads them to carry out the letter of the law but avoid its spirit. But the most important problem with complex regulations is that it makes it *harder* to hold financial firms accountable. How would we know whether firms are complying with regulations when we can't understand the regulations ourselves? Furthermore, how much can we blame firms for their failures if they have been doing everything regulators asked them to do?

Improving the rules of the financial game also involves updating bankruptcy laws. Paulson, Bernanke, and Geithner bailed out large financial institutions because they did not think the current bankruptcy process was expeditious enough. When a large firm fails, as Lehman Brothers did, various loans, cash, and other financial positions could be frozen for weeks, thereby reducing the amount of cash and credit available in the economy. The larger the firm, the longer it takes to unwind it. Locking up assets and introducing uncertainty weakens other firms and the general market. At the peak of the crisis, Paulson and company thought the bankruptcy of a few large firms would be catastrophic. The idea of "too big to fail" ultimately centered on the disruption and collateral damage from bankruptcy proceedings.

Improving the bankruptcy process would mitigate this problem. But doing so will require modifications to the existing bankruptcy codes, especially for large financial institutions. Dodd-Frank attempted to solve

this problem in a few ways. It required that all banks undergo stress testing, which is supposed to make the likelihood of bankruptcy much lower. Although, we might ask how creating a system that reduces or prevents the bankruptcy of large firms can be consistent with a free market where firms that do poorly are supposed to shrink or go bankrupt. Stress testing substitutes regulatory discipline for market discipline. Unfortunately, regulatory discipline opens the door to error, corruption, and blame-shifting.

Another aspect of Dodd-Frank designed to deal with the bankruptcy problem was the creation of “systemically important financial institution” (SIFI) status. SIFIs now have a special process for being unwound should they become bankrupt. Despite good intentions, the system remains untested. It is also unclear how the discretion of the regulatory agency involved will affect the terms under which these SIFIs are unwound. Then, of course, there is the issue of cost. Unwinding SIFIs by creating a sort of bridge firm, as the FDIC does for failing banks, requires significant financial support and often involves losses.

Dodd-Frank has also required banks to put together elaborate plans for unwinding their company in the event they go bankrupt. These “living wills” must be updated regularly as their financial positions change over time. Although thinking through the bankruptcy process from the firm’s perspective is no doubt useful, it can also be a costly distraction. A better approach would be to update bankruptcy laws to keep as much liquidity as possible available while finishing the bankruptcy process expeditiously.

Another way to improve the rules of the game is to update fraud and disclosure laws. The crisis was unexpected, and therefore devastating, because practically everyone in the market was acting with incorrect information about the number and quality of subprime and Alt-A mortgages. Besides bad reporting and misleading disclosures by Fannie and Freddie about their mortgage portfolios, there was also a great deal of fraud and misrepresentation in the mortgage origination process.

Financial accounting is a key component of any successful company. Not only does accounting track overall profit and loss, it can also be a tool for identifying which sources of income and expenses are significant, where costs can be economized, and the overall health of the company. After the accounting scandals at Enron and Worldcom, Congress passed Sarbanes-Oxley, an enormous set of new rules regarding accounting practices and reporting. Unfortunately, these rules fell prey to the same problems as other complex regulations. They created negative unintended consequences, such as encouraging companies to focus on making their balance sheets look good according to Sarbanes-Oxley reporting, rather

than increasing their actual fiscal soundness.

One of the accounting rules mentioned earlier, mark to market accounting, represents a series of rules issued from the 1990s into the 2000s. The Securities and Exchange Commission implemented a new rule, FAS 157, in 2006. The rule took effect on the eve of the crisis in November 2007. Although mark to market guidelines make sense during normal economic times as they reflect the underlying value of assets in the market, the rule bent and broke during the 2008 crisis. The price on the market did not accurately reflect the long-term value of these assets. During times of panic and fire sales, asset prices do not automatically fall to their long-term real values. Instead, they can drop well below their real value because of uncertainty, risk, liquidity constraints, and imperfect knowledge in the market.

Mark to market is the epitome, in a way, of the downside to regulation. It's a guideline that seemed accurate, prudent, and useful when it was created, and may have been useful for a time, but then market conditions change in such a way that the guideline created serious market distortions. During the crisis, the price of MBS assets fell below their long-term real value because there was so much pressure on many financial firms to raise cash by selling assets at the same time. The fire sales triggered by collateral calls and haircuts on commercial paper flooded the mortgage derivative market with sellers while scaring away buyers. The result was self-reinforcing price declines until the economy began recovering. Under these conditions, mark to market rules hamstrung financial institutions and contributed to the crisis. Future accounting rules should be simple, flexible, and clear to make it easier to hold firms accountable and to avoid disaster under unexpected market conditions.

Remove Government Distortions

Financial markets have developed in many unlikely and unprofitable ways due to government programs and rules. A prime example of this is the money market mutual fund industry that played an important role in the 2008 financial crisis. This industry didn't even exist before the 1970s. MMMFs were created and grew rapidly because of a legal restriction (regulation Q) on how much interest banks could pay depositors. As inflation rose during the 1970s, banks were not able to raise the interest rate they paid depositors. So entrepreneurs formed new funds to act much like banks do but by investing in safe short-term assets in the money market. They technically had investors, not depositors, but the mechanics of the fund were no different.

Besides improving the rules of the game for players in financial markets, we should also think about removing the government factor so that markets can operate more freely. This means eliminating implicit and explicit guarantees of bank creditors and depositors. It also means removing various direct and indirect subsidies to financial firms. Fannie and Freddie were the quintessential examples of destructive government favoritism. They were able to borrow at extraordinarily low interest rates because they were Government-Sponsored Enterprises. They also faced huge amounts of regulatory and Congressional pressure to issue mortgages for political reasons rather than for economic ones. Removing the government factor means explicitly protecting free entry and competition—unlike the SEC did in the 1980s and 1990s for credit rating agencies. Finally, we should prevent bureaucratic regulators from introducing onerous and unnecessary regulations as well as from introducing more uncertainty into the market.

Let markets work

Most people agree that higher economic growth is important. As Nobel Laureate Robert Lucas put it, once you begin thinking about economic growth, it's hard to think about anything else. Although legitimate concerns about the distribution of economic growth exist, few people directly oppose prosperity. That means most people should favor simple and clear rules over complex ones. And they should favor removing government distortions. Yet it may be worth addressing briefly the heightened skepticism about whether higher economic growth contributes to flourishing.

Most studies of wealth and happiness lack the rigor and precision economists would like to see because they depend so heavily on self-reported survey responses. Still, most of the studies show that wealth correlates imperfectly with happiness and flourishing. But when studies evaluate the connection between economic *growth* and happiness, the correlation becomes much stronger. Benjamin Friedman, an economist at Harvard, has written in the *Moral Consequences of Economic Growth* that economic growth is about much more than material prosperity. Times of economic growth tend to be associated with less racism, less crime, and greater solidarity. It also leads to falling infant mortality, higher levels of education, longer life expectancy, and other measures of flourishing.

Friedman argues that the *process* of economic growth benefits society in moral and spiritual ways, not just material ones. He argues that periods of economic growth usually bring rising levels of creativity, empathy, and

optimism while also leading to people having a greater willingness to cooperate with each other. He also finds that racial and religious discrimination tends to fall during periods of economic growth.

In contrast, stagnating economies experience epidemics of frustration, resentment, resignation, and hopelessness. You can see this among unemployed people in failing socialist or communist countries around the world. And you can even find it here in this country in pockets of many major cities. You can also see this phenomenon at work in books like *Hillbilly Elegy* describing rural poverty in West Virginia. Poverty is a complex social phenomenon, but economic growth and the opportunity to work are important parts of the solution.

Conclusion: What Should Have Been Done? What Should We Do?

During the crisis regulators should have focused on removing counterproductive regulatory rules such as mark to market accounting, which led to fire sales and debt deflation:

Why didn't the SEC overrule the financial accounting standards board, which insisted that banks "mark to market" their securities portfolios even when the markets ceased functioning, needlessly reducing precious bank capital during the crises[sic] by around \$500 billion that was fully recovered when the markets normalized?¹

Besides reducing how much capital banks had to work with, mark to market contributed to the general panic:

many of the world's largest financial institutions were subject to this shock, and the write-downs in their assets required by mark-to-market accounting made them appear weak and unstable. The widespread instability among financial firms made it appear to investors and other market participants as though the whole financial system was disintegrating.²

Not only did panic lead to declining investment as people decided to wait out the storm, it also provided the justification for TARP and other destructive government interventions.

Government officials could also have reduced the hemorrhaging in 2008 by improving the bankruptcy process. Instead of trying to delay or prevent bankruptcy, government agencies and officials should have focused on how to resolve bankruptcies more quickly. The problem wasn't that there was no process for resolving the failure of large banks; it was

that federal officials like Hank Paulson, Sheila Bair, and Ben Bernanke were afraid to implement them consistently:

When an institution fails, the FDIC could choose to put the institution into traditional bankruptcy or use an orderly liquidation authority and create a bridge bank, or another similar functioning entity, that will operate under FDIC control with new management and directors. The bridge bank will continue to serve the needs of depositors and borrowers, leaving the equity and long-term debt behind in a receivership with no guarantee of recovery. The bridge bank will be sold or privatized as soon as possible.³

The mindset among these regulators, as it frequently is during crises, was: ‘The world will end if we don’t do something. We need to stop the decline any way we can – regardless of future costs from moral hazard or less efficient markets.’ This reasoning shows up in descriptions of the crisis from Mark Zandi, Richard Posner, Ben Bernanke, Tim Geithner, and Hank Paulson.

The conventional wisdom regarding the 2008 financial crisis rests on very shaky ground. In fact, evidence suggests the conventional wisdom gets everything backward. Rather than a failure of capitalism due too little regulation and oversight, the crisis was at least exacerbated, if not created, by these very government interventions and bailouts. Rather than a failure of capitalism or free markets, the severity of the crisis can be attributed to government actors 1) Creating legal and regulatory uncertainty; 2) Fostering market panic; and 3) Subverting profit and loss signals.

The conventional wisdom that Lehman Brothers’ failure threw markets into turmoil and began a huge decline, or even collapse, of those markets is simply not true. There is relatively little evidence that the markets themselves failed. The conventional wisdom is that TARP and Fed lending programs restored confidence. That’s not true either; stock prices declined far more right after they were created! The worst part of the financial crisis came after the major government bailout program was passed.

Government induced uncertainty and panic clearly drove erratic stock market behavior as well as the spike in the LIBOR-OIS spread. But the economic inefficiency created by the fallout from these interventions was even more important. Weak and in some cases insolvent financial firms were allowed to survive. Stronger firms were basically taxed through TARP! The inefficiencies created by the myriad government interventions, regulations, and programs no doubt contributed to reducing economic growth during the recovery to half the historical average. Even if the conventional wisdom that markets would have declined even more without the bailouts were true, we would still likely be better off today if we had less regulation, less red tape, and fewer inefficiencies.

Markets are robust when there are clear rules and relatively few government-created distortions. Yes, sometimes people lose a lot of money. Sometimes companies, even very large companies, get into trouble or even fail. But it is easy to underestimate the resiliency of markets because we associate financial pain with market failure, even though it may be a natural consequence of a myriad of decisions made by countless actors. What we need to prevent or mitigate financial turmoil is clear predictable rules. Healthy economic growth in the long run can often trump financial turmoil or losses in the short-run. Attempts to mitigate financial turmoil by violating clear rules reduces economic growth and, as in the 2008 financial crisis, can actually make the financial turmoil worse.

Here we are ten years later. Housing markets are booming again, house prices surpassed their peak before the bubble popped in 2006, and interest rates have been artificially low for close to a decade. The country is awash in credit. If we want to avoid repeating history, we must learn from it—and go deeper than the conventional wisdom.

Notes

¹ Kovacevich (2014), pg. 550.

² Wallison (2011), pg. 3.

³ Kovacevich (2014), pg. 549.

GLOSSARY / APPENDIX

Overview of financial tools and terminology

1. Mortgages
 - a. ARM - Adjustable-rate mortgage
 - i. These were mortgages that started with an initial low “teaser” interest rate that would then adjust to the market interest rate plus some premium. Often these mortgages would reset after two or three years.
 - b. FRM - Fixed-rate mortgages
 - i. These mortgages had a fixed interest rate for the duration of the loan.
 - c. Subprime mortgage
 - i. Mortgages issued to borrowers who have a FICO credit score below 660.
 - d. Prime mortgage
 - i. Mortgages issued to borrowers who have a FICO credit score above 660 **and** meet other conditions such as a 20% down payment, fixed interest rate, etc.
 - e. Alt-A loans – Alternative to Agency loans
 - i. These mortgages were between prime and subprime. While the credit score of the borrower was above 660, the mortgage did not meet other traditional requirements such as a 20% down payment, less than 33% of the borrower’s income going towards debt, etc. Sometimes these loans are called “Non-traditional mortgages.”
 - f. Ninja loans
 - i. Term given to mortgages where there had been no verification that the borrower had any income, job, or assets (Ninja - no income, no job, no assets).
 - g. Liar loans
 - i. Refers to mortgages where borrowers and lenders misrepresented or outright lied about the terms of the loan and/or the condition of the borrower’s finances.

- h. Interest-only loans
 - i. These are adjustable rate mortgages where the borrower only pays interest on the mortgage, not principal, for a set period of time. Eventually the monthly payment will increase when the borrower needs to begin paying back interest and principal.
- i. Negative amortization loans
 - i. These are adjustable rate mortgages where the borrower pays less than the interest on the mortgage, meaning that the mortgage principal grows over time. Eventually the monthly payment balloons when the borrower must start paying all the interest and principal on the larger mortgage principal.
- 2. Asset-backed securities
 - a. MBS - Mortgage-backed securities (MBS)
 - i. These are financial instruments which grant the owner a claim to the interest and principal payments made into a pool of mortgages. These instruments were “tranching” or tiered so that some instrument-holders get paid first and others get paid later.
 - b. CDO - Collateralized-debt obligations (CDO)
 - i. These were similar in structure to MBS. But instead of being backed by a pool of mortgages, they could be backed by a pool of car loans, credit card loans, etc. During the housing boom, an increasingly large proportion of CDOs were backed by pools of MBS – meaning they were derivatives of derivatives.
 - c. CDO²-Collateralized-debt obligations squared (CDO²)
 - i. An asset backed by a pool of other assets. These assets were backed by a pool of CDOs, which were in turn backed by pools of MBS, which were then backed by pools of mortgages.
- 3. Financial Instruments
 - a. CDS - Credit default swap
 - i. A type of insurance where the buyer pays a regular premium to the seller. In return, the seller agrees to compensate the buyer if the value of the insured asset declines or if a particular credit event (such as a downgrade or bankruptcy) occurs. The seller can fulfill their contract either by paying the difference between the insured value and the face value of the asset, or by buying the asset itself at the insured price.
 - b. Repo – Repurchase Agreement
 - i. Selling an asset and agreeing to buy it again after a short period of time. The seller receives cash as a type of loan, and pays interest in the form of a slightly higher repurchase price. The

- buyer, meanwhile, has limited downside because they get to keep the asset if the seller cannot buy it back.
- c. Reverse repo – Reverse Repurchase Agreement
 - i. Just a repo from the opposite perspective. One buys an asset with the agreement to resell it after a short period of time.
 - d. Commercial paper
 - i. Short-term debt (i. e. less than one year) issued by banks and other large companies to raise money. This debt was sold in the money market to large investors like pension funds, insurance funds, and money market mutual funds.
 - e. Treasury bond
 - i. Federal Government debt with maturity greater than one year.
 - f. Treasury bill
 - i. Federal Government debt with maturity of less than one year.
4. Financial terms
- a. Paper losses
 - i. When firms or individuals lose money on paper—that is, the value of their assets fall—without any change in the amount of cash they currently have or their current cash flow.
 - b. Realized losses
 - i. When firms or individuals sell their assets at a lower price than previously. They have now “realized” the loss in value of their asset.
 - c. Mark to market accounting
 - i. Regulation requiring firms to mark their assets at the current market price. When the price of the asset falls, firms need to “mark down” their assets, which means they experience paper losses.
 - d. Fire sale
 - i. When firms or individuals are “forced” to sell their assets as quickly as possible. They usually get lower prices because they do not have time to search for better prices or to wait for better offers.
 - e. Debt deflation
 - i. Self-reinforcing cycle when firms sell assets to repay their debts, but in selling the assets they drive down the prices of those assets, which then leads to increased paper losses and the need to sell more assets to raise money. The overall value of financial assets in the system can decline or “deflate” through this process.

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- f. Margin calls
 - i. Most of the financial system works on borrowed money or margins. A margin call involves the lender requiring the borrower to repay part of the money that was borrowed – usually because the value of the borrowers' investments has declined.
- g. Counterparty risk
 - i. The risk that the individual or firm on the other side of a transaction will go bankrupt or be unable to pay what they have promised.
- h. Collateral
 - i. Assets that are used to back or insure loans. For example, mortgages are backed by collateral – the house. Lenders in the money market would often ask for collateral to insure their loans. CDS agreements also specified that the insurer needed to provide more collateral when the possibility of having to pay the insurance increased.
- i. Haircuts
 - i. The difference between the face value of assets and what people are willing to offer for them
- j. Shorting
 - i. The act of selling an asset on the belief that the asset will decline in value in the future.
- k. FFR – Federal Funds Rate
 - i. Interest rate at which banks lend to one another overnight. The Fed changes its target for this rate as part of its monetary policy.
- l. Libor – London Inter-bank Offered Rate
 - i. Interest rate at which banks lend each other dollars overnight outside of the United States and the Federal Reserve System
- m. OIS – Overnight Indexed Swap
 - i. Another name for the FFR or overnight interest rate between banks in the U. S. that have a Federal Reserve backstop should one of the parties default.
- n. Liquid/Liquidity
 - i. This represents one of two things. Either it can mean how easily an asset can be converted into cash or whether a firm has enough cash on hand to meet its immediate liabilities.
- o. Moral Hazard
 - i. Refers to the perverse incentives created when some entity agrees to pay for the downside risk, whether that be insurance, a guarantee, or a bailout. When individuals or firms no longer

suffer the full consequences of potential downsides to their decisions, they are far more likely to engage in risky behavior.

- p. Fiat Currency
 - i. Currency that is not backed by any physical asset like gold or silver. It is declared valuable. It is also “nonconvertible.”
- q. Momentum Investing
 - i. A strategy to take advantage of short-term changes in the price of a stock rather than investing based upon the long-term value of the underlying company.
- r. Fundamental Investing
 - i. Investing in stocks based upon comparing the fundamental or underlying long-term value of the company relative to the current stock price.
- 5. Financial institutions
 - a. MMMF - Money market mutual fund
 - i. These funds operate much like banks do. Investors buy “shares” at \$1 a share which the fund then invests in the money market for short-term debt. The investor receives “dividends” or interest over time in the form of more shares worth \$1. Investors are also able to withdraw their money any time they wish and even write checks against their accounts.
 - b. Investment banks
 - i. Public financial institutions that engage in proprietary trading and invest customers money but do not have deposit accounts
 - c. Commercial banks
 - i. Public financial institutions that make loans and issue mortgages while managing customer deposits
 - d. Off-balance sheet entities
 - i. Legal companies or vehicles that banks would use to fund the creation of MBS and CDO without increasing the size of their own balance sheets or increasing their leverage
 - e. SIV - Structured Investment Vehicle
 - i. One type of off-balance sheet entity. It would issue its own commercial paper to fund the purchase of mortgages or MBS in order to create new securities.
 - f. SPV - Special Purpose Vehicle
 - i. Basically identical to a SIV
 - g. CRA - Credit rating agency
 - i. Agencies granted official authority by the SEC to rate the soundness of assets including MBS and CDOs. Their ratings affected how much capital banks had to hold against the asset as

well as what kinds of assets pension funds and insurance funds were allowed to hold.

6. Financial Regulators

- a. SEC - Securities and Exchange Commission
- b. FED - The Federal Reserve
- c. FDIC - Federal Deposit Insurance Corporation
- d. OCC - Office of the Comptroller of the Currency
- e. OTS - Office of Thrift Supervision
- f. FINRA - Financial Industry Regulatory Authority

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